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ABSTRACT

This bibliography of research related to early childhood musical development is a product of the Mathemagenic Activities Program (MAP) for early childhood education of the University of Georgia Follow Through Program. Approximately 100 abstracts of research conducted between 1960 and 1977 are provided in one volume and a supplement. The abstracts, whenever possible, indicate purposes, procedures, results and conclusions of the studies. A synthesis of research findings from 1960 - 1973 is included. (RH)

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MATHEMAGENIC ACTIVITIES PROGRAM: EARLY CHILDHOOD MUSICAL DEVELOPMENT (BIBLIOGRAPHIES OF RESEARCH ABSTRACTS. 1960-75). (Title Supplied)

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Charles D. Smock, Editor

EARLY CHILDHOOD MUSICAL DEVELOPMENT

A Bibliography of Research Abstracts

1960-73

Gene M. Simons

June, 1976

Prepared for the

MATHEMAGENIC ACTIVITIES PROGRAM - FOLLOW THROUGH

of the

University of Georgia

Charles D. Smock, Director

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Introduction

This bibliography of abstracts has been compiled for the purpose of bringing together in one monograph virtually all the published research from 1960 through 1973 which deals with the musical responses and development of infants and young children.

The professional literature of educational psychology clearly indicates the effect of learning during early childhood is highly significant. The utilization of this premise by researchers in development of music ability has uncovered new and meaningful information about the ways in which young children learn, and are affected by, music. The range of this research is broad, going from prenatal conditioning to complete music curricula. The number of published research reports on early childhood music (according to our findings) increased steadily since the single report of 1960. There were six in 1963, eight in 1967, thirteen in 1971 and a total of 85 reports through 1973. This is a good beginning but only a beginning. At least three principal tasks remain: (1) many more issues need investigation, (2) researchers and teachers alike need to become familiar with the available literature and (3) research findings of pedagogical significance must be field tested, and successful techniques put into practice.

Research reports selected for inclusion in this publication were limited to those which had as their main purpose the investigation of musical responses, musical behaviors, or general musical development of children from the prenatal stage through approximately age seven years. Eighteen studies somewhat outside this scope have been included under the heading, "Related Studies," because they were deemed as potentially beneficial to early childhood teachers or researchers. The period from 1960 to 1973 was chosen because it is timely and also because of the increasing attention devoted to early childhood music learning during those years.

The abstracts themselves have been presented as factually as possible, with deliberate avoidance of any judgment or evaluation of the research. As an aid to the reader, however, the author has synthesized the research reported herein, and drawn some implications for research and teaching. The sources searched in collecting these abstracts are listed in the bibliography. A number of research reports published after 1973 are listed in the Appendix. It is likely that some studies which should appear here have been overlooked; the author would welcome information concerning such research.

It is our hope that convenient access to these abstracts in one volume may serve to stimulate research and teaching which will effect improvements in music learning at the critical early childhood years.

Synthesis of Research Findings

Infants

Despite the acknowledged importance of infancy in personal development the fourteen year period from 1960 to 1973 produced a surprisingly small number of research articles which dealt with the musical responses of infants. It is probable that this reflects the practical difficulties of conducting research with infants. The fact that infants do respond to musical elements has been confirmed. There is evidence that infants less than three days old are able to discriminate surprisingly minute fluctuations of audible rhythmic pulsations (Spiegler), that responses to certain sounds increase significantly during the first five months (Miller et al.), and that virtually all infants respond in some overt way to various kinds of vocal and instrumental music.

Musical Perception and Response

Important research on musical perception and response has been reported. These studies indicate that pre-school children (age 5) lack the ability to conserve musical elements when a musical stimulus in a repeated presentation is deformed (i.e., changed rhythmically, intervalically, etc.). The greater ability of older children to conserve musical configurations appears to be a function of maturation rather than instruction, since experimental instruction in Zimmerman's study did not significantly improve the musical conservation ability of 5-year-old children. The hypothesis that maturation is a significant factor in the development of auditory perception is supported by other research of rhythmic, harmonic, and melodic discrimination (Petzold, Blatt, Alford, Bridges, Gardner). Petzold further states that the development of auditory perception reaches a plateau no later than grade three.

Environmental Influence

Six studies in recent years have investigated the influence of home environment on the musical development of young children (Balagtas, Kirkpatrick, Reynolds, Shelton, Young, Hill). Two of these relied on singing ability as the principal indicator of musical ability, but the others measured such primary behaviors as pitch discrimination, bodily movement, and rhythmic tapping. The findings of these studies confirm that children from advantaged homes possess a higher level of musical ability than those from disadvantaged homes. This ability appears to be the result of parental encouragement and approval of the child's musical activities along with frequent opportunities to hear and participate in singing in the home.

Vocal and Rhythmic Abilities

The development of singing and rhythmic abilities of children is of continuing importance and interest to researchers and teachers. In a recent study in which the singing ability of 100 kindergarten children and 100 first grade children was individually tested, the researcher concluded that the child will sing most of the melody accurately, but pitch and intonation problems are common. It was further noted that the singing range of girls was lower than that of boys, and the range of black children was lower and narrower than that of comparable white children (Young).

A longitudinal study conducted in Russia examined the development of the child and the youthful voice as a basis for systematic teaching of singing. The author reported these characteristics of first graders' voices: small and fragile vocal apparatus, limited range, light and bright quality. Poor intonation was attributed to illnesses of vocal and hearing organs, emotional disturbances and lack of concentration (Gembizkaja).

Partial monotonism is apparently caused by the inability to produce singing tones normally while real monotonism is caused by deficiencies in pitch discrimination, tonal memory and voice production (Joyner).

One study reported that rhythmic training had no influence on primary children's ability to synchronize body movements with rhythmic stimuli, concluding that such ability is more dependent upon age, maturation and motor ability than rhythmic training (Graves).

Affective Domain

The importance of the affective domain in the teaching of music is generally unquestioned. One researcher analyzed selected writings of Herbart, Froebel, Montessori, Dewey, Arnheim and Kepes, then stated that "affect is of such significant relevance to intellect and motivation that one cannot be separated from the other" (Mogilnicki). Nevertheless, research with young children which deals with the affective domain has been limited, partially due to the intractability of this type of research. The idea that music may be used with children to excite or calm their emotions or activity rates has been sustained in two studies (Zimny and Weidenfeller, Rieber). In an investigation designed to develop the aesthetic sensitivity of second grade children through body movement it was found that the strongest response was to rhythm, there was a strong response to the quality of sound, and the children's originality of expression increased during the study.

Instruction

It is not surprising that a large portion of music research conducted with young children has dealt with instruction. Several studies have attempted to develop and/or test learning theories and curricula (Adkins and O'Malley, Dishart, Fitzmaurice, Lament, Piper and D. Shoemaker, Raley, Romanek, C. Shoemaker, Taebel, Thomas). Various instructional procedures have been employed, including application of Montessori principles, application of Piagetian theories, behavior modification, self-instruction, and televised instruction. Curriculum experimenters seem to agree that music learning can be improved among young children by careful selection of goals and objectives, the proper sequencing of learning experiences, effective methodologies, and the use of teachers' guides. Probably the most extensive pre-school curriculum development of recent years was conducted by the Southwest Regional Laboratory for Educational Research and Development.

The ability to sing is improved by group vocal training. Such training can be successful at the pre-school level (R. Smith) but no reduction of vocal capability is caused by deferring vocal training until school age (Boardman). The number of research articles dealing specifically with other performance skills is too small to allow generalizations.

The teaching of music reading skills was the subject of several research projects reported since 1960 (DiFronzo, Woskowiak). Three guidebooks for music reading, two of which incorporate language reading techniques, were developed (Stern, Sieh, Monroe). The advisability of using a variety of teaching methods appears to have been confirmed in two separate studies which compared methods of teaching. In neither study did children attain all the prescribed music reading objectives better through one method than the other. (Klemish, Richardson). In other studies the tachistoscope was used in grade three and programmed music reading games involving instrumental performance were used in grade one. Both researchers (DiFronzo, Woskowiak) report that their experimental method was more successful than conventional methods of teaching music reading.

Research evidence indicates that pre-school and primary school children are not too young to benefit from ear training. Preschoolers have been taught to identify aurally various orchestral instruments (Fuller). DeYarman determined that instruction in mixed and unusual meters as well as non-tonal music, improves the rhythmic and tonal capabilities of kindergarten and first grade children.

Instruction in rhythmic and sensory motor activities was used in one study to improve several non-musical concepts and skills among below-average kindergarten children. The investigator claimed that the ability to draw a human figure, body image concept, visual motor integrity, sensory motor spatial performance skills, and psycholinguistic abilities all were improved through a training program of 21 half-hour rhythmic and sensory motor activities (Painter).

Music for Young Children

Rich sources of music normally not included in popular publications have been identified by a few researchers. Extensive annotated bibliographies have been compiled which list (a) songs for children written by famous composers (Shull), and (b) vocal, dramatic and instrumental contemporary French music for children (Rogers). A source book of folk music and folk dances suitable for children published since 1940, and a companion teacher's guide, were developed by Bruno.

Measurement Procedures

Reliable and practical techniques for measuring musical learning of young children have not been adequately developed, therefore, many problems have been encountered in the area of evaluation. Gordon's Music Aptitude Profile, Colwell's Elementary Music Achievement Test, and Bentley's Measures of Musical Ability have been used successfully in grades two and/or three, but most experimenters working with children of ages seven years or younger have perforce designed their own measurement instruments, many of which have admitted weaknesses. Even the best known books on music evaluation (Colwell, Lehman, Whybrew, and Bentley) provide little or no guidance for taking musical learning measurements of children through age six. Those who have been bold enough to attempt formal evaluation procedures with preliterate children have usually relied upon individually administered tests of short duration most of which deal with melodic and rhythmic responses (Greenberg, Hill, Piper and Shoemaker).

Music in Special Education

The use of music in the treatment of young children having learning disabilities has met with considerable success. Various studies have indicated that (a) trainable mental retardates improved significantly in their ability to identify, aurally and visually, various orchestral instruments (Stubbs); (b) autistic children's ability to concentrate, their attention span (Goldstein), and their prosocial behavior (Stevens and Clark) were improved through music activities; (c) singing activities were effective ($p=.10$) in the treatment of speech delayed children (Seybold); (d) special music activities were more effective than conventional music activities in improving verbal comprehension and vocal integration of neurologically handicapped children (Pirtle and Seaton).

Corroboration of the value of music in teaching young exceptional children should be sought in music therapy literature.

Implications

The responsiveness of infants to various types of music stimuli is such that there seems to be little question that musical development begins at birth--perhaps prenatally. Despite the practical problems of conducting music research with infants, much more information is needed concerning the influence of early music experiences of various types and/or degrees upon development of musicality. Studies, including longitudinal studies, measuring the effects of music conditioning, as well as studies of ways in which other cultures go about developing musical sensitivity during infancy would be enlightening. The discovery and practice of techniques which prevent poor musical attitudes, poor musical "ears" and monotonism offer obvious advantages to both learners and teachers of music.

The thesis that maturation is a significant factor in the development of musical skills bears further investigation. It would be helpful to learn what specific influences are operating during maturation to effect improvement. Little has been done to determine the affect of music deprivation during various specific age periods. Could music deprivation studies help identify ages which are more critical than others with regard to acquisition of certain musical understandings and skills? If such age periods were more precisely identified, music learning could be improved simply by emphasizing music teaching during those periods when most children are most receptive to music learning.

It is clear that children who experience a musical environment in early life have greater interest in, and capacity for, learning and enjoying music than others. Sensitivity to music and aural discrimination ability are best developed during the first few years of life. The general level of interest and achievement in music among young children could be raised by educating parents and teachers of preschoolers to cultivate music through encouraging their children's musical activities, and participating frequently with the children in free, natural, musical expression such as singing.

The usual and unfortunate time lag between research findings and application of findings still exists in music instruction. Many investigators have demonstrated that music learning among young children may be hastened and broadened when realistic goals are established and effective teaching methods are employed. This would require that the teachers possess basic competence in music and emphasize music concepts in the music activities. Frequent use of music as a vehicle or enrichment for other areas of learning can rarely be regarded as effective music teaching.

Individualized instructional packages and electronic or technical devices which combine aural, visual and perhaps even tactile perception have seen only limited use with young children and seem to hold good possibilities for use in music instruction research and teaching.

Teachers who feel that most music used with their classes should be of good quality are often disappointed with much of the material now available. Many records produced expressly for pre-schools contain music in which certain elements (tone, pitch, expression, or rhythm) are crude and/or contrary to the music concepts which music educators advocate. There is much music for children in the literature which, if it were searched out, would enhance the quality and variety of music materials. Studies modeled after those of Shull and Rogers would be welcomed additions to the research literature.

Improvement in research findings in early childhood musical development is at least partially dependent upon provision of more and better assessment instruments. Techniques must be found which yield accurate data concerning children's musical responses, understandings, and skills, so we will know how to proceed with optimum success.

Research reports indicate that music is being used effectively in the training of exceptional children. The transfer of music therapy techniques from psychiatric hospitals to pre-school and primary school classrooms holds promise for the improvement of music and general instruction for a great number of children.

Adkins, Dorothy C. and O'Malley, J. Michael. Continuation of Programmatic Research on Curricular Modules for Early Childhood Education and Parent Participation. Final Report. Hawaii University, Honolulu. Office of Economic Opportunity, Washington, D.C., September, 1971.

Note: This abstract deals only with the music research which was Project C of four projects in the full report.

Purpose:

The purpose of this study was to design a curriculum which would help develop both cognitive and affective responses to music among preschool children.

Procedure:

The curriculum consisted of a Teacher's Guide, a Songbook, and Tapes which were integrated and cross referenced. The Guide contained behavioral objectives, material lists, teaching suggestions and sample lesson plans. Emphasis was placed on providing children with a variety of experiences with authentic music from many cultures in order to increase the children's aesthetic awareness and their understanding of the processes and elements of music. Lessons were planned to last 20 to 30 minutes a day.

The curriculum was introduced into 5 Head Start classes in Honolulu in 1970-71. Although the Guide and teacher workshops were intended to accommodate teachers with varying levels of musical knowledge, "the range of experience of the teachers seemed to influence the extent to which the curriculum was satisfactorily implemented."

The evaluation of this curriculum was based primarily upon the assessments of teachers who used it and upon content analyses by music specialists. The Guide needed some revision for teachers lacking musical sophistication, but the general assessment of the curriculum was highly favorable.

Results:

An experimental test of musical achievement (an individually administered instrument dealing with environmental tones, expressive elements, rhythm and melody) did not reflect the effects of the curriculum. It was determined, however, that the test could not be accepted as a satisfactory evaluation instrument until it undergoes further refinement.

Alford, Delton L. "Emergence and Development of Music Responses in Preschool Twins and Singletons: A Comparative Study." Journal of Research in Music Education, XIX (Summer, 1971), 222-7. Dissertation Abstracts, XXVII, 220-A.

Purpose: The author undertook to determine the following about twins and singletons:

1. the approximate age at which selected responses became apparent,
2. the types of music stimuli that evoke the greatest response,
3. the apparent influence of growth and maturation on the frequency and degree of responses to selected music stimuli,
4. the nature and development of overt musical expressions, either spontaneous or evoked.

Procedures:

Twelve pairs of same-sex twins were matched in age and sex with an equal number of singletons. Their ages were 22 to 44 months, and they were white, mostly middle class children. The subjects were the same as those used in Simons' research.[1] There were 2 major observation periods of 2 months each at intervals of 1 and 2 years after the termination of the initial research. Each subject was observed twice in each period at the interval of 1 month. These activities were observed:

1. gross responses to music stimuli, using piano, orchestral, and choral samples;
2. imitative responses to (a) regular pulsation--visual/aural (metronome, (b) brief rhythmic patterns, (c) brief pitch patterns, (d) brief musical phrases, and (e) brief unaccompanied songs;
3. free-play activities;

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[1] Simons, Gene M. "Comparisons of Incipient Music Responses Among Very Young Twins and Singletons." Journal of Research in Music Education, XII (Fall, 1964) 212-26.

4. actual recorded song performances.

The observations were conducted in the subjects' homes.

Results:

Nonparametric tests were employed in the analysis of statistical significance. Statistical significance was determined to be at the .05 level.

1. The combined aggregate scores of twin pairs was significantly lower than that of singleton pairs for 3 consecutive years.

2. The hypothesis that there was no significant difference in the inter-pair difference of twin pairs' and singleton pairs' frequency and degree of responses to music was rejected in some instances, but not in all.

3. The hypothesis that there was no significant difference in the intra-pair differences of twin pairs' and singleton pairs' frequency and degree of response was rejected in some instances. Twin pairs' responses tended to be more alike than those of singleton pairs throughout.

4. The hypothesis that there was no significant difference in the evocative power of specific musical stimuli was rejected for some variables and retained for others.

5. A significant difference in a subject's responsiveness to music at various age levels (6-month levels) was found.

A review of this dissertation by Marilyn P. Zimmerman appears in Council for Research in Music Education Bulletin, XXVI (1971), 47-51.

Alper, Clifford Daniel. "The Influence of Froebel's Mother-Play and Nursery Songs on Kindergarten Song Books, 1887 - 1918." Unpublished Ph.D. dissertation, University of Maryland, 1972. Dissertation Abstracts, XXXIII, 344-A.

Purpose:

The purpose of this study was to determine the nature and extent of the influence of Friedrich Froebel's philosophy as synthesized in Mother-Play and Nursery Songs on selected kindergarten song books published between 1887 and 1918.

Procedure:

Kindergarten song books published between 1887 and 1918 were studied to identify aspects of Froebel's influence.

Results:

Eight forms of influence of Mother-Play and Nursery Songs were found:

1. Interest in aesthetic education reflected in a wide variety of song material
2. References to or paraphrases of Mother-Play
3. Individual opportunities for children's creative development
4. Use of short songs, acknowledging young children's capabilities
5. Treatment of religion as affects (sic) of one's inwardly religious nature
6. Increase in use of multiple purpose song texts
7. Wide use of family themes
8. Use of songs of trades, tradesmen, community helpers, and transportation.

"Gifts" songs which accentuated meanings and purposes dealing with Froebel's gifts and occupations revealed Froebel's philosophy.

Eleanor Smith was found to be the composer who followed most specifically Froebel's philosophy in her songs. Ranges of songs became more accessible than in earlier song books, chromaticism and difficult intervals were avoided, and piano accompaniments incorporated the vocal melodies.

Aronoff, Frances Webber. "Guiding Cognitive and Affective Learning in Pre-Kindergarten Music." Unpublished Ed. D. dissertation, Columbia University, 1968. Dissertation Abstracts, XXIX, 622-A.

This project produced a pragmatic guide to planning pre-kindergarten music experiences. It includes a checklist of musical concepts, a vocabulary of young children's body movement, an inventory of discoveries about classroom instruments, and suggestions for games, movement inventions, and approaches to composition. Teachers' concerns are discussed. Examples of experiences with pre-kindergarten children and sample music learning objectives are provided. The author also included evaluative procedures for each type of objective.

Balagtas, Trinidad Maniquis. "The Relationship Between Parental Attitudes and Children's Creativity in Rhythmic Movements." Unpublished Ed.D. Dissertation, University of Nebraska, 1968. *Dissertation Abstracts*, XXIX, 4304-A.

Purpose:

The purpose of this study was to determine the relationship between creativity in the rhythmic movements of 4- and 5-year-old children and parental attitudes.

Procedure:

The 4- and 5-year-olds enrolled at the University of Nebraska Child Development Laboratory and their parents comprised the sample. The children were divided into subgroups for testing purposes and each subgroup was tested 3 times on 3 activities pertaining to rhythmic movements. The children's creativity was rated by a panel of judges by means of the Rating Scale for Creative Rhythmic Movements (RSCRM). Parents of the children were sent the Parental Attitude Research Instrument (PARI) and the Nebraska Parental Attitude Scale (NPAS), which measure attitudes toward child-rearing and other family situations. Parents' attitude scores were correlated with their child's creativity scores. The child's sex was also correlated with the creativity score. The t test was used to determine the difference between the mother's and the father's attitudes.

Results:

1. In general, only negative relationships were found between parental attitudes as measured by the PARI and children's creativity in rhythmic movements.
2. A positive relationship was found between the democratic attitude

of mothers as measured by the NPAS and their children's scores on the RSCRM.

3. Mother's and father's attitudes toward child-rearing and other family situations were not found to differ significantly.

4. No significant relationship was found between the child's sex and his creativity score.

5. The RSCRM was determined by inter-rater reliabilities to be a reliable instrument, but in need of further refinement.

Bennett, Linda, and Adams, Jane. "A Comparative Study of the Effects of Positive and Negative Reinforcements on the Efficiency of Musical Learning." Council for Research in Music Education Bulletin, X(Summer, 1967), 39-46.

Purpose:

The purpose of this study was to discover the effect of controlled manipulation of positive and negative reinforcements on the efficiency of musical learning in elementary general music classes.

Procedure:

Three classes ranging in grade level from 2nd to 4th were selected. The same lesson was taught to each class by the same teacher employing either positive, negative, or no reinforcement. Six lessons were used so that each class received each type of reinforcement twice. The treatment period lasted 4 weeks. Observers collected data using tally sheets to measure the number of predetermined desired responses achieved and the number of minutes required to achieve the responses.

Results:

The classes receiving positive reinforcement were more efficient in 4 out of 6 lessons. In the other 2 lessons the classes receiving no reinforcement were more efficient. The positive reinforcement classes averaged .85 minutes per response. The negative reinforcement classes averaged 1.06 minutes per response. The no reinforcement classes averaged .95 minutes per response.

Blatt, Arthur. "Rhythmic Responsiveness of Normal Elementary School Children: An Investigation of the Developmental Difference in the Rhythmic Responsivness of the Normal Child When a Rhythmic Stimulus Is Utilized, As Contrasted with a Musical Stimulus." Unpublished Ph.D. dissertation, New York University, 1964. Dissertation Abstracts, XXV, 2, 1315

Purpose:

The purpose of this study was to determine the developmental differences in the rhythmic responsiveness of normal elementary school children, ages five through twelve, to a purely rhythmic stimulus in contrast to a musical stimulus.

Procedure:

Children were divided into 4 age groups: Group I, 5- and 6-year-olds; Group II, 7- and 8-year-olds; Group III, 9- and 10-year-olds; and Group IV, 11- and 12-year-olds. Beethoven's Ecossaises edited to 134 measures (2 minutes) served as the basis for the stimuli. The musical stimulus was the edited version, melody, harmony, and rhythm, played on the piano. The rhythmic stimulus was the identical rhythmic equivalent to the melodic line and the basic rhythm played on a drum. A 78 RPM recording of the stimuli was used. A movie was made of the last minute of each child's response to each stimulus, and judges rated these twice on two scales: (1) for the amount of movement on a 7-point quantitative scale, and (2) for the kind of movement on a 7-point qualitative scale.

Results:

Both quantitative and qualitative data revealed, through a complex factorial analysis of variance, that the difference between the rhythmic responsiveness of age groups was significant at better than the .01 level of confidence. Except for age groups I and II, all age groups were shown by t tests analysis to differ significantly at better than the .01 confidence level.

A difference found in the interaction between sex and stimuli on the qualitative data was significant at the .05 confidence level. According to t test analyses, girls scored higher on music than on rhythm.

Conclusions:

Spontaneous rhythmic responsiveness diminishes radically as children grow older and as social experience, in terms of heightened awareness of others, increases. This response diminution seems to be due to socially and culturally induced suppression, not physiology or maturation.

Boardman, Eunice Louise. "An Investigation of the Effect of Preschool Training on the Development of Vocal Accuracy in Young Children." Unpublished Ed. D. dissertation, University of Illinois, 1964. *Dissertation Abstracts*, XXV, 1245.

Purpose:

The author's purpose was to investigate three aspects of the effect of vocal skill-centered training at the preschool level on children's ability to sing accurately. The three aspects studied were:

1. differences in vocal accuracy between children in kindergarten, 1st, and 2nd grade who had had vocal skill-centered training at preschool and those who had not.

2. the effect of preschool training on improvement of accuracy from kindergarten through the 2nd grade (3 year period).

3. the effect of preschool training on vocal accuracy in specific ranges--low, middle, and high.

Procedure:

Forty-six children who had vocal skill-centered training were matched by age, sex, grade level, and socio-economic background of parents with 46 children who had not had the training program. A test made up of 20 tonal patterns was devised and recorded with each pattern repeated 3 times. The child listened and repeated the patterns heard. The test was scored on a 7 point scale, with 7 points given for accurate response and 1 point given for no response.

Results:

1. No significant difference ($p=.05$) was found between those who had preschool training and those who had not.

2. Children who had had the preschool training program showed no significant increase in ability between grade levels, while those who had not had training showed a significant increase between grades.

3. Preschool training did not significantly affect vocal accuracy in specific ranges.

4. Children showed a gradual increase from grade level to grade level in the total number of accurate responses.

5. Children in both groups performed with approximately the same degree of accuracy in all ranges.

A review of this dissertation by Charles H. Ball appears in Council for Research in Music Education Bulletin, XI(1967), 46-9.

Bridges, Virginia Ann. "An Exploratory Study of the Harmonic Discrimination Ability of Children in Kindergarten Through Grade Three in Two Selected Schools." Unpublished Ph. D. Dissertation, The Ohio State University, 1965. Dissertation Abstracts, XXVI, 3692.

Purpose:

The purpose of this study was to determine whether it is possible to learn something of the development of harmonic discrimination in kindergarten, 1st, 2nd, and 3rd grade children. Harmonic discrimination was defined as the ability to select the most appropriate accompaniment.

Procedure:

A sample of 378 children in kindergarten through 3rd grade was selected from 2 schools having different types of music programs. The accompaniment of one song from a basal music text was recorded on tape as the appropriate accompaniment along with two alterations of the accompaniment which were not considered appropriate. The 3 accompaniments were paired into 3 sets (1-2, 2-3, 1-3). The subjects were asked whether one in each set sounded better or if both sounded all right. Three group testings were administered with the same song at one month intervals. Each month the pairs were rearranged on the tape. After the third testing the subjects were asked to make a decision about accompaniments for an unknown melody. Each child's responses were tabulated according to the testing (1st, 2nd, or 3rd) and the sex of the child for each grade level and for each school. The raw data for each child corresponded to a value category which indicated one of 4 levels of harmonic discrimination. The data were presented in terms of percentages of subjects at each school at each of the 4 harmonic discrimination levels.

Results:

1. There was a gradual development in the harmonic discrimination of children in grades K through 3.

2. There were some differences between the harmonic discrimination of boys and girls in favor of boys in the 1st grade, but not always in favor of one sex or the other at other grade levels.

3. Children in kindergarten through 3rd grade whose musical experiences were the responsibility of a music teacher or unknown melody, than the children to whom the classroom teacher taught music.

4. Children in kindergarten through 3rd grade were better at discriminating an unknown melody than girls. Second grade girls were better at discriminating an unknown melody than boys.

A review of this dissertation by Barbara Connally Kaplan appears in Council for Research in Music Education Bulletin, XIX(1970), 30-3.

Brown, Greeta Elaine Knight. "An Adaptation in Music Listening: A Program Designed for Eskimo Children in Grade One." Unpublished D.M.A. dissertation, University of Oregon, 1972. Dissertation Abstracts, XXXIII, 345-A.

Purpose:

The purpose of this study was to design an adapted program in music listening for first-grade Eskimo children.

Procedure:

1. A thorough study of the Eskimo language was conducted.
2. A study of the socio-cultural life of Eskimos was made.
3. The recorded listening programs of the 5 basic music series adopted by the Alaska State Department of Education were studied. Notations were made of the composer, title, form instrumentation, and duration of each recorded selection.
4. The recorded selections which were judged to be suitable were presented in the form of teaching lessons for use in the classroom.

Conclusions:

Winifred D. Lande, Alaska's foremost authority of the education of Eskimo children, read and endorsed the adapted lessons. It was concluded, however, that these lessons were only a beginning in offering a meaningful music education to Eskimo children.

Bruno, James Byron. "Folk Music Materials for Use in the Elementary School." Unpublished Ed. D. dissertation, New York University, 1960. Dissertation Abstracts, XXI, 3112.

Purpose:

The purpose of this study was to develop a source book of available folk music material for use in the Social Living units of the Elementary Course of Study for Pennsylvania.

Procedure:

Folk songs, folk dances, and recorded folk music which have been published since 1940 and are appropriate for elementary school children were collected and listed. Three procedures were used in accomplishing the research:

1. Criteria for selection of suitable folk materials were established.

2. Available folk music material related to the Social Living units was surveyed, and appropriate material was selected and compiled.

3. Two teaching guides were prepared and validated. One guide was for primary grades, and the other was for intermediate grades. They suggest possible ways of using the folk music materials.

de Yarman, Robert Michael. "An Experimental Analysis of the Development of Rhythmic and Tonal Capabilities of Kindergarten and First Grade Children." Unpublished Ph.D. dissertation, University of Iowa, 1971. Dissertation Abstracts, XXXII, 2727-A.

Purpose:

The purpose of this study was to investigate 5 problems:

1. whether children taught to sing in duple and triple meter (usual meters) perform songs in duple and triple meter better than children taught to sing in usual, unusual, and mixed meters;

2. whether children taught only tonal songs would perform them better than children taught tonal and nontonal songs;

3. whether kindergarten children taught mixed and unusual meters for 1 year would perform them better than 1st grade children who had had 1 year of typical kindergarten music training;

4. whether kindergarten children given 1 year of instruction in nontonal songs could sing them better than 1st grade children who had had 1 year of typical kindergarten music training;

5. whether the level of musical aptitude is a factor in determining the extent to which a child can learn songs in various meters and tonalities.

Procedure:

271 kindergarten and 1st grade children were selected. Each received 3 20-minute music lessons per week. Four kindergarten and 4 1st-grade groups were designated as rhythmic experimental groups; 1 kindergarten and 1 1st-grade learned songs in usual meters, while 3 kindergartens and 3 1st-grades received varying amounts of instruction in songs in mixed and unusual meters. Two kindergartens and 2 1st grades were designated for the tonal experiment; 1 class of each grade learned only tonal songs, while the other 2 classes learned tonal

and nontonal songs. Evaluation of individually taped performances of the 7 criterion songs was done by the author and another elementary general music specialist.

Results:

1. Children receiving varying amounts of instruction in mixed and unusual meters performed the criterion songs in usual meters significantly better than children instructed in usual meters only.

2. Children instructed in both tonal and nontonal music performed, overall, the criterion songs in major/minor tonalities significantly better than children instructed in tonal songs only.

3. 1st-grade children receiving varying amounts of instruction in mixed meters performed the criterion song in mixed meter better than the corresponding kindergarten rhythmic experimental groups. However, 1st graders instructed in unusual meters did not perform the unusual meter song significantly better than the corresponding kindergarten rhythmic experimental group.

4. 1st graders instructed in tonal and nontonal songs performed the nontonal criterion song significantly better than the corresponding kindergarten tonal experimental group.

5. Generally, high musical aptitude children performed significantly better than low musical aptitude children.

A review of this dissertation by Robert E. Nye appears in Council for Research in Music Education Bulletin, XXIX (1972), 28-32.

Dishart, Martin. Arts and Humanities for Young School Children. Central Atlantic Regional Educational Laboratory, Department of Health, Education, and Welfare, Office of Education Bureau of Research. Washington, D.C.: June, 1969.

Purpose:

This report was designed to present an overview of Phase One of the CAREL Arts and Humanities Curriculum Development Program for Young Children. Specific goals were to develop:

1. Five components of the arts, including music, for grades K through 3.
2. A training program in the arts for classroom teachers.
3. A conceptual approach to show goals and resources required to meet pupil needs in the arts.

Procedure:

Children were encouraged to explore art forms freely. Student-teacher interaction helped develop children's abilities to formulate and solve problems. Teachers received training in a summer workshop, and curriculum development workshops were conducted during the school year.

Results:

Attempts to establish behavioral objectives early in the program failed, "and it was concluded that children's needs must first be determined."

A proposal for the continuation of the program was denied because of lack of funds.

Dittemore, Edgar Erwin. "An Investigation of Some Musical Capabilities of Elementary School Students." Unpublished Ph.D. dissertation, The University of Iowa, 1968. Dissertation Abstracts, XXIV, 4516-A.

Purpose:

The author attempted to investigate 3 problems:

1. the existence of different melodic, rhythmic, and harmonic abilities in the average student at different grade levels,
2. the existence of a logical sequence in the development of these capabilities,
3. the relationship of capability levels and musical aptitude.

Procedure:

The subjects were 29 students in grades 1 through 6 at the University of Iowa Elementary School. 12 musical abilities were studied: melodic - ability to sing in the major mode, minor mode, Dorian mode, atonality; rhythmic - ability to chant rhythm in duple, triple, unusual, and mixed meters; harmonic - the ability to sing a round, a counter-melody, 2-part music, and 3-part music. One week was devoted to each musical ability. A song related to a specific ability was taught in all grades during the music period on 4 consecutive days. On the 5th day tape recordings were made of individual performances of the song learned during the preceding 4 days. These performances were evaluated by 2 judges through the use of a 7-point scale. The composite standard scores on the Musical Aptitude Profile (Gordon) were used to divide the students of each grade into 3 musical aptitude groups. The judges' composite ratings of the tape-recorded performances of each of the 12 songs were then tabulated according to school grade and musical aptitude level.

Results:

1. These musical capabilities were found to be well-developed in the subjects at the designated grade levels:
    a. first grade - minor mode, duple and triple meters
    b. second grade - major mode, Dorian mode, mixed meter, round, counter-melody.
    c. third grade - unusual meter, 2-part music.

Results for non-tonal and 3-part music were not consistent.

2. The following sequence appeared in the development of the 12 musical capabilities:
    a. melody - first ability, to sing in minor mode then major and Dorian modes, finally non-tonal music.
    b. rhythm - first ability, to perform duple and triple meters, then mixed meters, and finally, unusual meters.
    c. harmony - first ability, to sing a round and a counter-melody, then 2-part music, and finally, 3-part music.
3. Students with average or high musical aptitude showed a higher capability level for performing all musical tasks except for non-tonal and 3-part music than did the students with low musical aptitude. No consistent trends were found for non-tonal and 3-part music performance capabilities for any level of musical aptitude.

Dressler, Diane Grace. "A Music Record Library for Preschool Children."
Unpublished Ed.D. dissertation, Columbia University, 1970.
Dissertation Abstracts, XXXII, 1548-A.

Purpose:

The purpose of this project was to develop a music record library for use with preschool children and teaching guides for this level including suggestions for classroom use.

Procedure:

Music educators and music librarians were consulted concerning suggestions for listening materials, and current music texts for preschool children were reviewed. Works were chosen on the basis of 5 criteria:

1. Growth and development of young children
2. Length of the musical work
3. Quality of the music
4. Representative works of Western music from Baroque through Contemporary periods
5. Music of limited complexity.

Orchestral and instrumental ensemble literature was chosen, using only complete compositions or single movements of suites.

Suggestions for activities and experiences are included in the teaching guide.

Duell, Orpha K. and Anderson, Richard C. "Pitch Discrimination Among Primary School Children." Journal of Educational Psychology, LVIII (1967), 315-8.

Purpose:

The purpose of this study was to determine how large a pitch interval first-, second-, and third-grade children differentiate in the natural classroom setting.

Procedure:

The subjects were 168 first-, second-, and third-graders with normal hearing. The subjects were asked to judge pairs of pure tones presented on tape as either the same or different. The standard ranged from 390 to 440 cps, and the interval between the standard and the comparison tone ranged from one-third of a half step to a major sixth. The unison was presented 16 times. The entire test lasted about 30 minutes.

Results:

1. About 30 per cent of the subjects were unable to discriminate differences as large as a half-step.
2. Four per cent of the subjects were unable to discriminate differences as large as a sixth.
3. Neither a practice effect nor a loss of efficiency due to fatigue as testing progressed were found.
4. Significant differences were found among the grades and among intervals. The percentage of correct discriminations increased as the size of the interval increased and improved from first grade to third grade.

Fitzmaurice, S. N. D., Sister Therese Julie. "An Experimental Music Program Based on Montessori Principles." Unpublished Ph.D. dissertation, Boston University Graduate School, 1971. Dissertation Abstracts, XXXII, 2119-A.

Purpose:

The author attempted to:

1. analyze the techniques and principles of Maria Montessori's approach to early childhood learning.
2. determine the potential of applying these techniques and principles in a music-learning program for very young children.

Procedure:

A thorough study of the writings of Maria Montessori and advocates and adversaries of her method, as well as the works of current psychologists and experts in the field of early childhood education, was conducted. Applicable musical learnings were determined, and the program of musical experiences based on Montessori techniques and principles was formulated. The program was presented to a group of children of ages 3 to 5 years in a Montessori class over a period of 8 months, under the direction of the author and 2 regular Montessori teachers. The program was evaluated by 4 means: (1) the author's observations, (2) comparison of the experimental group with a similar group of children attending another Montessori school and not receiving the specially designed music program, (3) observations of video-tape recordings of the sessions made at various intervals, and (4) the study, experimentation and evaluation of the program by the 2 Montessori teachers of the experimental group.

Fridman, Ruth. "The First Cry of the Newborn: Basis for the Child's Future Musical Development." Journal of Research in Music Education, XXI (Fall, 1973), 264-9.

Fridman hypothesizes that the first cry of a newborn infant generates not only spoken language and musicality, but also movement and musical rhythm. To investigate this hypothesis, tape recordings and observations were made of full-term babies, premature infants, and 2-, 4-, 8-, 12-, and 14-month-old children.

Fridman also states the following observations and cites related research:

1. The first cry of the newborn comprises approximately 5 to 12 contiguous sounds. This pattern is reproduced, varied, and reinforced. At 4 months the voice is firmer and jumps an octave more than it did at birth. The child continues in this pattern, developing new sounds and restricting those which are not a part of his language.

2. Babies can hear from the moment of their first cries. Reactions of newborn babies to the playing of flute music were observed. Some babies were calmed and ceased crying. High-pitched sounds did not appear to affect a baby's state of relaxation. Premature infants reacted to high-pitched sounds, but not to low-pitched sounds.

3. 12-to-14-month-old children react to sounds produced by their peers. During an observation of a group of children of this age range at play, one child said, "Good-bye." Four of the other children repeated the word at different pitches and with different timbres.

4. From birth different rhythms accompany the baby's activities as he is growing. About the age of three months the child begins to notice that some movements are accompanied by sounds.

Fullard, William G., Jr. "Operant Training of Aural Musical Discrimination with Preschool Children." Journal of Research in Music Education, XV (Fall, 1967), 201-9.

Purpose:

The purpose of this study was to determine if special techniques can be used to teach the identification of complex aural stimuli to preschool children. The hypotheses tested were:

1. "Programmed techniques can be used to teach preschool children to identify complex musical stimuli, in this instance various orchestral instruments."
2. "The subsequent identifications of a second set of similar stimuli will be facilitated by the previous training."

Procedure:

Ten preschoolers were randomly divided into 2 groups. Group 1 consisted of 1 girl and 4 boys with a mean age of 51.4 months; Group 2 consisted of 3 girls and 2 boys with a mean age of 50.6 months.

Six orchestral instruments were selected as stimuli and divided into 2 sets. Set A was made up of violin, clarinet, and cello. Flute, viola, and French horn comprised Set B. A pretest was administered individually in which each subject was asked to identify the instruments he heard playing various solo excerpts.

Learning trials were administered individually. During the learning trials, Group 1 learned Set A first and then Set B, while Group 2 learned Set B first followed by Set A. The instruments in each set were presented in pairs. After an initial presentation of the pair, one instrument was played and the subject was asked to point to its picture and say its name. Candy was dispensed for each correct response. A criterion of 7 correct responses out of 9 possible identifications was used. Once criterion was reached on the first set, the second set was begun. At posttest of about 12 minutes duration was administered. The posttest was the same as the pretest except that pictures of the 6 instruments were present during the posttest.

Results:

1. The difference in the subjects' pretest and posttest scores indicated that learning had taken place.

2. No significant difference was found in the relative difficulty of Set A and Set B.

3. Comparison of the number of trials required to reach criterion on the first set and the number of trials required to reach criterion on the second set indicated that a transfer of learning did exist. Learning of the second set was apparently facilitated by learning of the first set.

Gardner, Howard. "Children's Duplication of Rhythmic Patterns," Journal of Research in Music Education, XIX(Fall, 1971), 355-60.

Purpose:

The purposes of this study were:

1. to inventory children's ability to duplicate rhythmic patterns
2. to provide specific norms
3. to present a technique appropriate for assessment and training studies.

Procedures:

Twenty each of 1st graders (modal age 6), 3rd graders (modal age 8), and 6th graders (modal age 11) were selected randomly from an elementary school. There were slightly more boys than girls in the sample. A taped test of 20 items, 4 each of 4, 5, 6, 7, and 8 taps, was administered individually. The first 3 items were shorter, while the rest were randomly arranged. The subjects' attempts to duplicate the patterns were recorded on tape. The author and another judge heard tapes of 2 randomly selected subjects at each age level. They agreed completely on correct and incorrect responses, so the reliability was considered adequate. The remaining tests were scored by the author.

Results:

Each subject received 5 scores representing the number of items correctly repeated in each of the 5 groups of taps. The scores were treated statistically, and significant differences ($p < .01$) were found between age groups, item groups, and individual subjects. The interaction of age and number of taps was not significant. Items with more taps were generally more difficult. Most subjects did better on the second half of the test, suggesting improvement during the test session. Most items were too simple for the 6th graders, resulting in a ceiling effect. The difficulty of an item seemed to be a function of the number of taps, arrangement of taps, and the item's position in the test.

Gembizkaja, E. "Systematic Development of the Child's Singing Voice in Russia." International Music Educator, V(April, 1962), 146-8.

In the 1940's research began of the scientific study of the child's voice at various age levels. A laboratory for phonetic research was established in the Institute for Artistic Education, a branch of the Academy of Scientific Pedagogy. Regular and exhaustive examinations of many years resulted in several conclusions concerning the development of the child and youthful voice and established a basic for systematic teaching of singing in the first through seventh grades.

First grade: The vocal apparatus is small and fragile, with short vocal cords. Since the lungs are not fully developed, children are not capable of correct deep breathing. Songs must be of limited tonal range. Limited range, special lightness, and bright quality are characteristic of the voice. Poor intonation can be attributed to illnesses of vocal and hearing organs, emotional disturbances, and lack of concentration.

Grade two: Vocal character remains light and clear, but vocal breathing develops, range broadens, organs of articulation become activated, and intonation becomes more accurate.

Grade three: Voices are stronger and clearer. Often the special timbre of soprano and alto appears, but choral quality of the group remains light and bright. Range expands at the expense of the higher register.

Grade four: Soprano and alto tone quality shows up at its best. A mixed quality also develops with the soprano as well as alto voices.

Grades five and six: The sound is richer. Head tones and mixed quality predominate in girls' voices. Soprano voices of boys sound bright and clear from a high d" and e". There is no difficulty in the further development of mixed voices and head register.

Gould, A. Oren. "Developing Specialized Programs for Singing in the Elementary School." Council for Research in Music Education Bulletin, XVII (1969), 9-22.

Purpose:

The purpose of this study was to investigate the singing problems of elementary school children and to develop ways of helping children find and learn to use their singing voices. Four problem areas were recognized: (1) dealing with the child who does not learn to carry a tune, (2) identifying factors of success, (3) evaluating and using factors of success, and (4) adaptation of factors of success to varying age levels and materials.

Procedure:

The project consisted of 3 phases, each lasting one year.

Phase 1: The nature and causes of children's singing difficulties were studied, along with remedial methods and materials found to be successful by others. Interviews and classroom observations were included, and a national survey was made.

Phase 2: Pilot studies and case studies using remedial procedures and sequences for children in grades 1, 2, and 3 who were having problems were developed. Children were assigned to either the experimental or control groups. The Gould Speech and Song Test was used for pre- and post-testing. Tape recordings of subjects' singing were also rated by a panel of judges.

Phase 3: This phase consisted of experiments in public elementary school classrooms, grades 1 through 6, using music specialists and classroom teachers as experimental teachers.

Results:

Phase 1: From the opinion/survey of 602 teachers percentages of incidence of singing difficulties by grade level, i.e., percent of children who cannot carry a tune, opinions as to the nature and causes of singing problems, and suggested remedies were compiled.

Phase 2: The pilot tests were successful. Fifteen children in the experimental group and 12 children in the control group were identified as having singing problems. The post-test indicated a drop to 1 child in the experimental group and 4 in the control group whose singing problems persisted.

Phase 3: Gould test results indicate that all experimental groups excelled control groups in differences in pre- and post-test means. In all but one experimental group, standard deviations for the post-test were considerably reduced from those of the pre-test, indicating that poorer singers were catching up to the better ones.

Greenberg, Marvin. "Music in Isreal's Primary Schools." Journal of Research in Music Education, XV (Spring, 1967), 60-72.

The aims of Isreal's music instruction are: (1) to implant a love of music into the heart of every child, (2) to train the child towards concentrated music listening and to impart the ability to enjoy musical compositions, (3) to encourage the child toward various creative activities, and (4) to equip the child to view the arts as an important foundation of his life. The curriculum states that the musical activities and learnings take place in each of the eight primary grades based on a schedule of two 50-minute periods per week. The curriculum includes activities such as singing and rhythmic movement, playing instruments, listening, and music reading. The major foundation in the lower grades is eurhythmics, based on the teachings of its founder Jacques-Dalcroze. Almost every primary school in Isreal has a choir. Instrumental work in the early primary grades is centered around the making and playing of percussion-type instruments. There are few primary schools training students in orchestral instruments. Facilities and supplies are limited due to financial conditions.

Groves, William C. "Rhythmic Training and Its Relationship to the Synchronization of Motor-Rhythmic Responses." Journal of Research in Music Education, XVII (Winter, 1969), 408-15.

Purpose:

This study tested the null hypothesis that there is no significant difference in the ability to synchronize body movements with rhythmic stimuli between those who have and those who have not had rhythmic training. Home musical environment, motor ability, sex, and personal-social adjustment were also considered.

Procedure:

A sample of 164 1st-, 2nd-, and 3rd-grade children was selected, of which 131 completed the study. Twenty 1st-grade, 16 2nd-grade, and 25 3rd-grade children assigned to the rhythmic training group completed the study, and 25 1st-grade, 19 2nd-grade, and 26 3rd-grade children assigned to the no rhythmic group completed the study. All subjects were given a motor-rhythmic-synchronization test. The experimental group received an instructional program based on a non-directive technique with the emphasis on rhythmic stimuli incorporated in a tonal setting. This group received 2 30-minute lessons per week for 24 weeks. The treatment was divided into 6 4-week periods with one basic rhythmic pattern emphasized in each period. During the last period all the patterns studied were combined. The motor-rhythmic-synchronization test was again administered to all subjects as a post-test.

Results:

The null hypothesis of no significant difference between the 2 groups was sustained. Motor ability was found to be a significant factor in the child's ability to synchronize body movements with rhythmic stimuli. Home musical background, sex, and personal-social adjustment were not found to be significant factors. Age and maturation appeared to be more significant than instruction to rhythmic synchronization ability.

Hair, Harriet I. "The Effect of Training on the Harmonic Discrimination of First-Grade Children." Journal of Research in Music Education, XXI (Spring, 1973), 85-90.

Purpose:

The author's purpose was to determine if first-grade children could:

1. discriminate whether 2 paired chords were the same or different,

2. learn to associate a tone with a chord in 4 brief training sessions,

3. improve more in harmonic discrimination when performing chords in the training sessions than when merely listening to chords.

Procedures:

A stratified random sample of 111 first-grade children from the Spartanburg, South Carolina, public schools was assigned to experimental and control groups. Eighty-two subjects completed all sessions. A pretest was given during the week before the training sessions. Four 10-minute training sessions and the post-test were administered on consecutive days. The tests and training were given individually. The total participation time for each subject was about 1 hour with the whole project encompassing about 7 weeks. Part 1 of the test was same or different chords, and part w tested the ability to associate a tone with a chord. The children gave 83% of the correct answers on Part 1 of the pretest, so same and different chords was eliminated from the training. In the training sessions the experimental group used a chording device on an electronic organ to play a chord with the tone they heard on a tape recorder. The control group did not play, but merely listened. Correct responses were reinforced verbally and with stickers on which were printed music notes and the word, "Good."

Results:

1. The author found that children can discriminate harmonic change.

2. The effects of training on the association of a tone with a chord could not be determined conclusively because of the low reliability of the test. The total group reliability coefficient was .49.

3. The children learned to give more varied responses on Part 2 of the test, although not necessarily the appropriate response. The results of Part 2 appear to be due to chance.

Harrington, Charles J. "An Investigation of the Primary Level Musical Aptitude Profile for Use with Second and Third Grade Students." Journal of Research in Music Education. XVII (Winter). 359-68.

Purpose:

This investigation was undertaken (1) to establish normative data for the interpretation of the primary version of the Musical Aptitude Profile (Gordon) scores earned by second and third grade students and (2) to investigate aspects of the concurrent validity of the primary version MAP.

Procedure:

During the fall of 1966 the primary version MAP was administered by music supervisors to 1735 students, 736 second graders and 999 third graders, enrolled in public schools throughout the Midwest region of the United States. After the students were tested, subjective ratings of their musical and scholastic ability were made by music supervisors and classroom teachers without knowledge of test scores. A second validity criterion utilized judges' ratings of students' performances of musical examples which were composed especially for this investigation.

Results:

The evidence gathered suggests that the primary MAP which includes the same item content as the regular MAP functions as well with second and third graders as the regular MAP does with fourth grade students and older. The test scores demonstrate satisfactory reliability and test results appear to be more generally related to musical ability and performance that to scholastic ablilty. Until futher evidence is compiled, it is recommended that only the rhythm and melody subtests be used for diagnostic purposes.

Hill, John D. "The Musical Achievement of Culturally Deprived and Advantaged Children: A Comparative Study at the Elementary Level." Journal of Music Therapy, V (September, 1968), 77-84.

Purpose:

The author undertook to test these null hypotheses:

1. There is no significant difference between the mean scores on the Primary Music Skills Test of kindergarten and 1st-grade children from deprived and advantaged environments.

2. There is no significant difference between the mean scores on the Gordon Music Achievement Profile of 4th-, 5th-, and 6th-grade children from deprived and advantaged environments.

Secondary hypotheses studied were that there is no differential effect on test results associated with sex, there is no effect on test results when scores on the Iowa Test of Basic Skills are held constant, and that mean scores on the Primary Music Skills Test and the Gordon Music Achievement Profile are not parallel across grade lines between advantaged and deprived groups.

Procedure:

The subjects selected were 757 kindergarten, 1st-, 4th-, 5th-, and 6th-grade children from 3 large midwestern cities. Virtually all subjects in the deprived group were from homes with incomes of $3000 or less per year and with parents on some sort of relief. Over 50% of the deprived subjects had only 1 parent present in the home. Parents of the advantaged subjects had incomes ranging from $7000 to $25,000 per year, and only 10% of the advantaged subjects were from broken homes. The Primary Music Skills Test was administered to the kindergarten and 1st- grade children. It consisted of 36 items or skills in 6 subsections: (1) Interval Matching, (2) Unknown Phrase Imitation, (3) Tone Matching, (4) Song Phrase Performance, (5) Tap Recognition, and (6) Tap Imitation. The total test time was 15 minutes. The Gordon Music Achievement Profile was administered to the

4th-, 5th-, and 6th-graders. It is a test of musical cognition and perception in 3 sections: (1) Melodic, (2) Rhythmic, and (3) Harmonic. Each section has 46 items.

Results:

1. Advantaged kindergarten and 1st-grade children performed significantly better than deprived kindergarten and 1st-grade children on all subtests except Tap Recognition. This subtest was considered by the author to be too easy. The advantaged kindergarten children performed better than deprived 1st-grade children.

2. Advantaged 4th-, 5th-, and 6th-graders performed significantly better than deprived 4th-, 5th-, and 6th-graders on the Gordon test. Advantaged 4th-graders performed better than deprived 6th-graders on all subtests except the Harmonic. Advantaged 4th-graders performed better than deprived 5th-graders on all subtests. 6th-grade children performed significantly better overall than 4th-grade children, but 6th-graders' scores were not significantly better overall than those of 5th-graders.

3. Boys and girls were equal on all tests except the Primary Music Skills Song subtest on which there was a slight girl-over-boy superiority.

4. 5th- and 6th-grade advantaged children had significantly better scores on the Iowa Test than deprived 5th- and 6th-grade children. With Iowa Test scores held constant no significant difference between the advantaged and deprived groups was found on the Gordon Melodic and Rhythmic subtests. Significant differences remained on the Harmonic subtest and on the composite score.

5. The gap between the advantaged and deprived groups neither widened nor closed across grade levels at significant rates. Examination of the Gordon Test mean scores reveals a slight but consistent increase in the gap through the grade levels.

Johnson, Louise Hope. "The Role of Classroom Keyboard Experiences in Teaching Musical Concepts to Young Children." Unpublished Ed.D. dissertation, Columbia University, 1970. *Dissertation Abstracts*, XXXI, 3169-A.

Purpose:

This project was undertaken for 2 purposes:

1. to develop a conceptual learning sequence in music for children between the ages of 4 and 7 years, and
2. to suggest experiences in the manipulative use of keyboard instruments which will strengthen conceptual learnings.

Procedure:

A review of literature in the areas of early childhood education, psychology of young children, music education, and the use of keyboard instruments in the elementary school was conducted. The body of musical knowledge was examined in order to determine the key musical concepts with which young children can deal. Key concepts were then developed pertaining to the general nature of music, the elements, and notation. These were then stated in terms with which young children could work. A sequence for presenting each series of concepts was developed. Next, a series of keyboard experiences was developed based on work with kindergarten, first-, and second-grade classes. The experiences were designed to lead each child to the discovery of the musical concepts.

Included in this dissertation are examples of the musical concept-developing experiences and a list of behavioral objectives for the total program of music education for young children.

Jones, Merilyn. " A Pilot Study in the Use of a Vertically-Arranged Keyboard Instrument with the Uncertain Singer." *Journal of Research in Music Education*, XIX (Summer, 1971), 183-94.

Purposes:

The purposes of this study were:

1. To test the hypothesis that a vertically-arranged keyboard instrument, manipulated by the child, would be effective as a means of improving the aural-vocal performance of the uncertain singer,

2. To develop a procedure for working with this instrument.

Procedures:

1. A test was designed having 7 parts alternating aural and vocal tasks: Part I-Vocally match single pitches in the range a to g^1; Part II-Tell how many notes were played in patterns of 2 to 5 tones; Part III-Vocally match single pitches in the range a to d^2; Part IV-Tell whether 2 tones are the same or different; Part V-Sing intervals and patterns; Part VI-Tell which of 2 tones is higher; and Part VII-Sing the intervals of an ascending 4th, 5th, and 8va and the patterns 1-2-3, 3-2-1, and 1-3-5 within the range c^1 to c^2.

2. Two boys and 2 girls each from grades 2 and 3 were selected as subjects based on teacher recommendations as average ability students with singing difficulties and on a screening test of pitch-matching selected from Tests I and III. The subjects each matched fewer than 5 of 20 pitches.

3. A pretest was administered with tapes made of the vocal portions.

4. A practice plan was developed for each child based on the pretest results, using a developmental procedure. Practice sessions were designed to follow sequential steps in levels of singing ability. Each child received 4 hours total instruction in 16 sessions of 15 minutes each covering approximately 4 weeks. Piaget's interview technique was used with a cumulative record for each child in which the progress of each session was noted. The keyboard instrument was a Magnus

electric reed organ with these adjustments: (a) the pitches in the child's range were color-coded; (b) letter names were put on the keys; (c) a light was installed beneath the keyboard; and (d) it was used in a vertical position. Correct responses made during the practice sessions were reinforced by the lighting of the keyboard.

5. The post-test was administered.

Results:

The results were not treated statistically, because this was a pilot study using only 8 subjects. The percent of accurate responses on the pre-test was 30 to 56%, while it was 61 to 96% on the post-test. The average gain in percent of accurate responses based on the average composite score in aural-vocal skills was from 40% on the pre-test to 86% on the post-test.

Kirkpatrick, William Coy, Jr. "Relationships Between the Singing Ability of Prekindergarten Children and Their Home Environment." Unpublished Ed. D. dissertation, University of Southern California, 1962. *Dissertation Abstracts*, XXIII, 886.

Purpose:

The purpose of this study was to define certain singing characteristics of 5-year-old children and to clarify the relationships between home musical environment and singing ability.

Procedures:

The pre-school music stimuli of 116 children was rated by interview, and 3 types of home musical environments were identified: Excellent to Good, Good to Fair, and Poor. Socio/economic status was determined by Warner's Index of Status Characteristics. The children's singing was recorded in their homes, and singing ability was determined using a Stroboconn. Children with 90% or more correct tones with no tonality changes were rated "singers"; "partial-singers" had 75 to 89% correct tones with one or more tonality changes; "non-singers" had less than 74% correct tones or no tonality established. Range, starting tone, keys, and pitch level were compared with the California State Series--Kindergarten Book.

Results:

1. 51.7% were rated "singers," 28.5% "partial-singers," and 19.8% "non-singers."

2. The children's preferred starting tone was D^{b^1}, compared to G^1 in the kindergarten book.

3. 65% of the children's songs (unaccompanied) were in the low octave of the keys A, B, C, D^b, and E^b with 72% of the songs in the book in C, F, and G.

4. 78% of the children's tones ranged from B (below C') to $G^{\#1}$, whereas 76% of the tones in the book ranged from F^1 to C".

5. Strong relationships were found between singing ability and home musical environment significant beyond the .005 level.

   a. Excellent to good environments produced "singers" and "partial-singers" with few "non-singers."

   b. Poor environments produced no "singers," but significant numbers of "partial-" and "non-singers."

   c. Poor musical environments were found in lower class homes in numbers significant beyond the .01 level.

Klemish, Janice J. "A Comparative Study of Two Methods of Teaching Music Reading to First-Grade Children." Journal of Research in Music Education, XVIII (Winter, 1970), 355-64.

Purpose:

The purpose of this study was to determine the relative effectiveness of 2 methods of teaching music reading of melodic patterns to first-grade children.

Procedures:

Two first-grade classes were chosen from Title I (1965) schools and 2 from non-Title schools in Oshkosh, Wisconsin. A pre-test consisting of tests of auditory perception and written recognition, discrimination, and use of notation and pseudo-notation was administered to all subjects. The two teaching methods were administered to one Title I and one non-Title class each in 4 20-minute lessons per week for 1 semester. The total number of class periods for each sub-group was 52. Teaching Method 1 used visual representations such as hand movements, body movements, curved lines, dashes and diagrams not using the staff and conventional notation. This method moved to conventional notation 2 weeks prior to the end of the experiment. Teaching Method 2 used a music staff and filled-in noteheads (with no interim process) and a diatonic approach beginning with conjunct movement and patterns occurring at cadences, progressing from 3 to 5 tones, and using patterns which occur most frequently in children's songs. Tones were called by numbers, i.e., 1 = Tonic, 2 = Supertonic, etc. After the completion of the treatment a post-test consisting of singing patterns from notation, written recognition, dictation, and matching of melodic patterns in notation was administered to all subjects.

Results:

1. 70% of all subjects correctly answered over half the items on the post-test compared to 39% on the pre-test.

2. The method effect was not significant, but some skills were developed better on one method than another.

  a. Subjects who experienced Method 1 were better at identification of melodic direction, aural matching, aural/visual matching, and singing patterns.
  b. Subjects who experienced Method 2 were better at using conventional notation, recognition of patterns, writing tones dictated from the piano and dictated by numbers, and visual matching.

Kokas, Klara. "Psychological Testing in Hungarian Music Education." Journal of Research in Music Education, XVII (Spring, 1969), 125-34

Purpose:

These tests were undertaken to measure the musical and extra-musical effects of music education upon the behaviors of emotionally disturbed and normal young children.

Procedure:

An experimental group of 20 3-year-old children in a government children's home were given an enriched program of music experiences including singing lessons, singing games, concerts, and other listening experiences. A control group was chosen from another children's home. Children enrolled in government children's homes usually have some types of emotional problems.

Another group of 32 children, ages 4 to 5 years, from a normal kindergarten (i.e., not a government home) were divided into experimental and control groups of equal size. The experimental group attended special music lessons twice a week.

Methods of research were observations and tests. Tape recordings and written diaries were made concerning development of these musical abilities:

1. Resinging of pitches and brief melodies.
2. Recognizing sounds of rhythm instruments or singing voices.
3. Replaying rhythmic motives.
4. Recognizing a song by its melody or rhythm.
5. Inner hearing.
6. Rhythmic movements
7. Improvization ability.

Two groups of tests were used to measure readiness of observation and readiness of motion.

In observation test one, children were asked to match pictures of animals. In observation test two, children were asked to arrange magnetized small figures on a metal board--first by matching, then by memory. Observation ability was evaluated by counting major and minor errors of each child. Later, another test was given in which the subjects placed geometric figures into their appropriate spaces and the number of correct fittings were counted.

Five different movement tests for the younger children were developed for this investigation. These tests involved imitative movement, rhythmic movement recall, movement coordination, balance, static physical expression of motion, and story representation by movement.

The movement tests for older children involved arm and hand movements, controlled jumping, accurate coordination of two-hand movements, static physical expression of movement, and motoric recall and expression.

"The Research of 6- to 8-year-olds will not be described."

Results:

1. (Note: Results of musical training were not presented in this article.)

2. Observational Ability

Statistical analysis showed no difference between the musical and control groups in test one of observational ability. On test two (geometric figures) the music group performed better than the control group, but significance is not claimed.

3. Movement Ability (Younger Group)

The average number of points scored by the music group on the 5-part test was only slightly higher than the points awarded to the control group.

Kyme, George. "The Appropriateness of Young Audience Music
Programs for Primary Grade Children." Journal of
Research in Music Education, XIX(Fall, 1971), 366-72.

Purpose:

The purpose of this study was to evaluate the effectiveness of three Young Audience Music Programs in bringing about increased sensitivity to the elements of music in primary grade children.

Procedures:

An experimental sample of 300 2nd and 3rd grade students in schools was selected. The children were a racially mixed cross-section of the cities of Oakland and Berkeley, California. A control group of 100 2nd and 3rd graders was also selected. Twenty-six scenes from 6 Young Audience programs were presented on closed-circuit television to both the experimental and the control groups. A test based on this presentation was designed and administered to both groups. It consisted of hierarchical tasks in the areas of pitch, timbre, rhythm, and form. The experimental group in 2 schools participated in 3 Young Audience programs, while the experimental group in one school participated in 2 programs. The control group did not hear the programs. The test was administered again to both groups. The lower boundary reliability coefficient of the test was determined to be .66.

Results:

1. The 3rd grade control group was the only group which did not show a significant gain from one test to the other.

2. The growth of musical sensitivity was significantly greater for the experimental groups.

3. Indications were that the Young Audience Music programs brought about significant learning in the areas of pitch, rhythm, and timbre for primary grade children.

The results may have been influenced by the interest of the experimental sample. This would seem to indicate a favorable combination of cognitive and affective development for growth in musical sensitivity.

Lament, Marylee McMurray. "A Guide for Teaching Music in the Elementary School (Primary Level)." Unpublished Ed.D. dissertation, Columbia University, 1971. Dissertation Abstracts, XXXIII, 1980-A.

Purpose:

The purpose of this project was to formulate a conceptual approach for discovery and exploration of concepts related to the elements of music. The author attempted to include all the developmental influences of musical growth in grades K through 3.

Procedure:

A conceptual growth pattern of simple to complex was structured and song materials and listening examples were selected for each presentation. General activities, such as dramatization, gestures, free rhythmic movement, listening, singing, creating, and playing were used to explore each element of music.

Mathis, William. "The Emergence of Simple Instrument Experiences in Early Kindergartens." Journal of Research in Music Education, XX (Summer, 1972), 255-61

Satis Coleman was recognized in the 1920's, though not necessarily approved of, for a creative program of making and playing simple instruments at the Lincoln School of Columbia University Teachers College. The progressivism was felt as early as 1900 in the gradual turn from scale-drill sight singing to rote singing. Attitudes on kindergarten music activities were more congenial to instrumental experiences than those in public school music because of kindergarten reforms at that time directed against the ridig techniques resulting from American interpretations of Froebel's European kindergarten concepts. Kindergarten activities became more inventive and less inhibited. Posturing and bodily movement accompanied gesture songs, as well as marching. Instruments--horseshoes, nails, sticks, bells--were first used in rhythm work. Toy instruments were used; ocarinas, metallophones, parlor bells, kazoos, and toy trumpets were available. Hofer stressed kinder-band work as early as 1904. She identified the potential of such experiences for serving the needs of self-discipline, skill in discrimination, sensitivity to form and design, and improved rhythmic response.[1] The presence of instruments in kindergarten programs was probably taken for granted, but in the general category of rhythm activities. From 1920 "how-to-do-it" articles appeared in kindergarten periodicals and children's magazines. The infusion of simple playing experiences into the elementary school music programs derived from these early kindergarten developments.

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[1] Marie Ruef Hofer and C. H. Farnsworth, Teachers College Record, Vol. 5 (January, 1904).

Maze, Nellie Marie. "A Study of the Correlations Between Musicality and Reading Achievement at First Grade Level in Athens, Georgia." Unpublished Ed.D. dissertation, University of Georgia, 1967. Dissertation Abstracts, XXVIII, 10, 3895-A.

Purpose:

The purpose of this study was to investigate the existence of relationships between native musical ability and reading achievement and the possibility of common factors. Two hypotheses were tested: (primary) there is a significant relationship between musicality (limited here to pitch and timbre discrimination, rhythmic sense, and tonal memory) and verbal reading ability; (secondary) there are certain areas of musicality correlating at higher significance levels than others. The .05 level was selected as probability level for this study.

Procedure:

First grade students (124) from low, middle, and high socio-economic levels were selected and given a modified form of the Seashore Measures of Musical Talents. It was designed to be as non-verbal as possible. Reading achievement scores were obtained a month later with the Metropolitan Achievement Battery, administered by the school system. The former test was presented to the students in the form of a game situation.

Results:

The null form of the primary hypothesis was rejected, as most of the correlations between subtests of musicality and reading achievement reached significance at the .01 level. The null form of the secondary hypothesis could not be rejected, however, because correlations among the different reading achievement and different musicality areas reached approximately the same levels of significance. When reading achievement and correspondingly high musicality profiles were compared, boys showed much higher levels of significance than girls.

Miller, June; de Schweinitz, Louise; and Goetzinger, Cornelius P. "How Infants Three, Four, and Five Months of Age Respond to Sound." Exceptional Children, XXX (December, 1963), 149-54.

Purpose:

The purpose of this study was to observe the responses of infants with normal hearing to auditory stimuli. The specific problems were:

1. to evaluate the consistency of the children's responses to various noise-makers, and
2. to evaluate the differences in responses by age, race, and sex of physically normal children.

Procedure:

The subjects were normal, full-term infants, half being male and half being female. There were 18 each of 3-, 4-, and 5-month-old children of whom 37 were Negro and 17 Caucasian. The stimuli were 10 noise-makers, randomly divided into 2 equal groups. The 5 noise-makers comprising a group were presented to each ear of each child 3 times in such a way that the child could not see the noise-maker or the actions of the experimenter. The criterion for a response was an overt action by the child 3 out of the 6 times that he heard each noise-maker.

Results:

1. The 2 groups of noise-makers were identical in the evoking of responses.
2. The 4-month-old subjects responded significantly more frequently than the 3-month-olds. (p=.001)
3. The 5-month-old subjects responded significantly more frequently than did the 4-month-olds. (p=.01)
4. Race and sex were not found to be factors in frequency of response.

Nelson, Cecelia R. "Televised Music Instruction for Second Grade." Unpublished Ed. D. dissertation, Columbia University, 1963. Dissertation Abstracts, XXIV, 2934.

Purpose:

The purpose of this project was to produce a teachers' guide for a year of 2nd grade televised music instruction and 4 telelesson scripts, illustrating the use of a variety of visuals which might be useful to classroom teachers in providing a balanced music program with good quality.

Procedure:

An advisory group consisting of 2nd grade teachers, a principal, consultants, and the television coordinator was organized. This group made recommendations concerning appropriate expectations in musical growth, the role of the telelesson and guide in the total 2nd grade music program, the role of the teacher during and after the telelesson, scheduling, evaluation of the students' musical growth, and evaluation of the telelesson productions. The teachers' guide was prepared, submitted to the group for suggestions, and revised. The author then ascertained the type of production facilities available and the type of script preferred by the director and prepared four scripts in which a variety of visuals could be used.

A review of this dissertation by Marilyn Pflederer appears in Council for Research in Music Education Bulletin, V(1965), 24-7.

Pagano, Alicia Leonard. "A Study of the Classroom-Interaction Patterns of Selected Music Teachers in First-Grade and Sixth-Grade General Music Classes." Unpublished Ed.D. dissertation, The American University, 1972. Dissertation Abstracts, XXXIII, 4185-A.

Purpose:

The author attempted to categorize and describe the classroom interaction of selected music teachers in first and sixth grades. A secondary purpose was to analyze and interpret variations in classroom-interaction patterns of music teachers in the same grade and between music teachers in grade one and the same teachers in grade six.

Procedure:

Audio-tape recordings were made of a minimum of 5 different class sessions in each grade of the general music classes of 10 music teachers. A total of 107 class sessions were recorded. The information was categorized and tabulated by means of a modification of Flanders' System of Interaction Analysis. Data were analyzed by the Kendall coefficient of concordance and the Wilcoxon matched-pairs signed-ranks.

Results:

1. Teacher talk dominated classroom behaviors in both grades.
2. Musical behaviors were used extensively.
3. The teachers were consistent in their interaction patterns in the same grades.
4. No significant differences in influence patterns were found between grade one and grade six.
5. Teachers used lecturing significantly more in grade six than in grade one.

6. More time was spent by teachers in accepting and using sixth-grade students' ideas.
7. More time was spent praising and encouraging students in first grade and in giving directions to first-graders.

Painter, Genevieve. "The Effect of a Rhythmic and Sensory Motor Activity Program on Perceptual Motor Spatial Abilities of Kindergarten Children." Exceptional Children, XXXIII (October, 1966), 113-6.

Purpose:

The purpose of this study was to determine the effect of a rhythmic and sensory motor activity program on perceptual motor integration, body image, and psycholinguistic competence of kindergarten children.

Procedure:

Twenty children in the lower 50 per cent of their kindergarten class, based on Goodenough MA scores, were selected as subjects. They were placed in 2 groups matched in IQ, CA, MA, and sex. Prior to and following training, the Illinois Test of Psycholinguistic Abilities, the Goodenough Draw-a-Man Test, and the Beery Form Reproduction Test were given. The Stanford-Binet Intelligence Scale was given prior to training only. The training program was administered in 21 half-hour sessions over a period of 7 weeks to the experimental group. It consisted of 38 activities related to 9 areas: (1) visual dynamics, (2) auditory dynamics, (3) dynamic balance, (4) spatial awareness, (5) tactual dynamics, (6) body awareness, (7) rhythm, (8) flexibility, and (9) unilateral and bilateral movement. The activities were sequenced to progress from the very simple to the more intricate. The control group received no treatment. In addition to the 3 tests mentioned above, a sensory motor performance test was given to all subjects after the training.

Results:

Hypothesis 1, "a systematic program of rhythmic and sensory motor activity willeffect the level of ability to draw a human figure," was supported. ($p \simeq .055$)

Hypothesis 2, "the program will ameliorate the apparent distortion of body image concept," was supported. (p= .01)

Hypothesis 3, "the program will improve visual motor integrity," was supported. (p=.004)

Hypothesis 4, "the program will improve sensory motor spatial performance skills," was supported. (p=.002)

Hypothesis 5, "the program will improve psycholinguistic abilities," was supported. (p=.055 for motor encoding and auditory vocal association.)

Petzold, Robert G. "A Report of the Third International Seminar on Research in Music Education." Journal of Research in Music Education, XXI(Summer, 1973), 99-105.

The Third International Seminar on Research in Music Education was held in July, 1972, in Gummersbach, West Germany. Twenty-eight music educators representing 12 countries participated. The two main topics of discussion were (1) curriculum research in music education and (2) research on the musical development of young children. Rupert Thackray (England) delivered the keynote address, "Research in Music Education with Very Young Children." He considered (1) the emerging significance of education in early childhood and the possible implications for music education, (2) the instructional problems arising from current interest in concept formation, (3) the role of sex, language, musical abilities, and musical readiness in the conceptual and musical development of children, and (4) the implications from research in planning and carrying forward instructional activities in music. Thackray also posed 20 questions for discussion during the small group session. When the seminar broke into 2 discussion groups, the early childhood group explored these 5 areas based on Thackray's 20 questions:

1. The role of environment in musical development.
2. The possibility of ascertaining fundamental stages or phases of musical growth.
3. The consideration of a logical versus psychological sequence of musical development.

4. The role of language in concept formation.

5. The need for music educators to clarify and refine the nature and possible hierarchy of musical concepts.

The other major address of the seminar was delivered by Kurt-Erich Eicke (West Germany) and was entitled "Curriculum Research." The second small discussion group explored this topic further.

Petzold, Robert G. "Auditory Perception by Children." Journal of Research in Music Education, XVII(Spring, 1969), 82-7.

Purpose:

The author set out to identify the ways in which children in elementary school (ages 6 to 12) perceive and respond to the auditory presentation of sounds.

Procedure:

The project contained 2 major aspects:

1. a longitudinal study of 3 groups of children

2. a series of one year pilot studies dealing with musical elements.

The tests used were constructed by the author and required that the child make some kind of overt musical response to an aural presentation of the test items.

Results:

The author concluded that age (grade level) is a significant factor in the development of auditory perception with limitations. This reaches a plateau no later than grade three, but there are indications that the most significant changes occur between grades 1 and 2. There is an overall tendency for girls to perform with greater accuracy than boys. The results of this study also emphasize that the ability to imitate the aural presentation of certain kinds of musical ideas is not a measure of the understanding children have of such ideas.

Petzold, Robert G. "The Development of Auditory Perception of Musical Sounds by Children in the First Six Grades." Journal of Research in Music Education, XI (Spring, 1963), 21-43.

Purpose:

The basic purpose of this study was to determine the difference between children at each of the first 6 grade levels in the ways in which they perceive and respond to the auditory presentation of musical sounds. This would permit a more precise definition of the nature of the development of the child's ear.

Procedure:

The study dealt primarily with the melodic element of music. Two types of tests were developed: (1) a test measuring the aural perception of short tonal configurations and (2) a test measuring auditory perception of large and more complete musical ideas. The stratified sample was randomly drawn from the normal population of children in grades 1 through 6, a total of 600 students being tested. Four tests were used. (1) A 45-item test was designed to provide data regarding the auditory perception of short tonal configurations. The items varied in difficulty and represented the following: scale patterns ascending and descending, chord patterns ascending and descending, disjunct patterns, conjunct and disjunct combinations of scale and chord patterns. (2) A 20-item test was designed to give data regarding the consistency of pupil responses to short tonal configurations. (3) A rhythm test was also designed . In it, the 45-item test was rewritten so that each item represented a common rhythmic, as well as tonal, configuration. (4) A phrase was designed which tested the ability of the children to retain a mental image of aurally perceived phrases then repeat the phrases vocally.

Results:

1. No significant differences were found between boys and girls in terms of their performance.

2. The hypothesis that age (grade level) is a significant factor in the development of auditory perception may be accepted with certain reservations.

3. The hypothesis that musical experience is a significant factor in the development of auditory perception may not be rejected with confidence.

4. The competence levels of the 45-item test indicated that the proportion of children earning high scores tended to increase at each successively higher grade level.

5. The addition of the rhythmic elements to the melodic pattern has no significant effect.

6. From the 20-item test it was concluded that children were capable of making consistent responses to a given stimulus.

7. Correlations among the tests were high.

Pflederer, Marilyn Ruth. "The Responses of Children to Musical
Tasks Embodying Piaget's Principle of Conservation."
Unpublished doctoral dissertation, University of Illinois,
1963. Dissertation Abstracts, XXIV, 4730. Journal of
Research in Music Education, XII(Winter, 1964), 251-68.

Purpose:

The purpose of this study was to devise musical tasks embodying Piaget's principle of conservation of meter, tone, and rhythm, and to determine the responses of 8 5-year-old and 8 8-year-old children to these.

Procedure:

The orientation of the investigation was that stages from non-conservation (the result of perceptual centration) to an intermediate stage of conservation (reflected by a conflict between biasing perceptual centrations and intuitive regulations) to absolute conservation could be observed in the responses of 5- and 8-year-old children to tonal and rhythmic patterns. Nine musical tasks were devised to study rational aspects of musical development as evidenced by the ability to conserve meter, tone, and rhythm. The only criterion for selection of the sixteen subjects was that they had had no private music instruction. Each child met individually with the investigator and underwent the tasks assigned.

Results:

The answers of the kindergarten children (5-year-olds) showed a lack of conservation and were indicative of preoperational thought. The answers of the 8-year-old children reflected the intermediate stage of conservation.

Implications for Music Education:

1. Overt interaction of the child with the musical problem would seem to be of primary importance.
2. It is necessary to provide models for the children to imitate.
3. It is necessary to supply a variety of musical experiences; the curriculum should stimulate a maximum amount of growth at each stage.
4. Children should experience a large number of patterns to sharpen their discrimination.
5. The story setting for the tasks should be adapted to live classroom situations.

A review of this dissertation by Robert G. Petzold appears in Council for Research in Music Education Bulletin, III(1964), 56-62.

Piper, Richard M., and Shoemaker, David M. "Formative Evaluation of a Kindergarten Music Program Based on Behavioral Objectives." Journal of Research in Music Education, XXI(Summer, 1973), 145-52.

Purpose:

The Southwest Regional Laboratory for Educational Research and Development developed a concept-oriented music program for kindergarten designed to be used in regular classroom situations. The purpose of this study was to evaluate KMP (Kindergarten Music Program), answering these questions:

1. Does the program teach students to do things they would otherwise be unable to do?

2. Does the program teach all it purports to teach?

3. Which program tasks can be done successfully by students who have had no formal music instruction?

Procedure:

KMP was administered to 2 classes from each of 2 schools (103 students), and a comparison group of 2 kindergarten classes from 2 additional schools was chosen (96 students). All students were from the middle to lower socio/economic range attending school in an urban area. A pretest made up of 6 items based on the first 15 lessons of KMP was administered to both groups, and they were judged to be equal in musical ability. The KMP group received 3 20-minute lessons per week for 30 weeks. The comparison group received no special music instruction. A posttest of 34 items was designed, consisting of 4 imitative items, 15 identification-discrimination items, and 15 production items covering melody, harmony, rhythm, and dynamics. The posttest was randomly divided into 6 subtests by the item-examinee method, a method which allows the researcher to administer only a portion of the entire test to each student and provides him with a statistical model by which he may estimate the mean, variance, and test score distribution of the entire group. The subtests were randomly assigned to subjects. Each subtest lasted for approximately 5 minutes.

Results:

The reliability of the posttest was low, but the researchers felt that the test was still satisfactory, because they were actually evaluating the program rather than the individual students. The questions posed in the purpose (above) were answered as follows:

1. Yes. Large differences between the mean posttest scores and the test score distributions of the 2 groups were found. (Significant at the .001 level.)
2. No. KMP teaches some tasks well but is weak in others.
3. The following tasks were performed successfully by the comparison group:
    - a. distinguishing between same and different phrases.
    - b. identifying gross features of melodic contour, such as ascending and descending lines.
    - c. distinguishing between accompanied and unaccompanied music.
    - d. distinguishing between fast and slow pulse.
    - e. distinguishing between loud and soft dynamic levels.

Raley, Alex Hart. "Developing Musical Concepts in the Primary Grades." Unpublished Ed. D. dissertation, Columbia University, 1966. Dissertation Abstracts, XXVIII, 711-A.

Purpose:

The purpose of this project was to develop a rationale for planning music curricula based on the sequential development of the student's understanding of basic musical concepts.

Procedure:

1. Basic musical concepts were examined and outlined in order to be better understood and used by teachers in planning and teaching. These concepts were put into 2 categories: (a) those that are part of the aesthetic nature of the experience, and (b) those having to do with the perceptual content of the experience.

2. Recent literature on learning and teaching theory and child growth was examined for information pertinent to teaching musical concepts in the primary grades.

3. Guidelines and examples were developed for planning classroom musical experiences in lesson sequences which emphasize discovery of musical concepts and which insure continuity of developing an understanding of concepts through a series of enactive, iconic, and symbolic experiences appropriate to the child's developemnt.

A review of this dissertation by Marvin Greenberg appears in Council for Research in Music Education Bulletin, XX(1970), 21-25.

Reynolds, George Earle. "Environmental Sources of Musical Awakening in Pre-School Children." Unpublished Ed.D. Dissertation, University of Illinois, 1960. *Dissertation Abstracts*, XXI, 1214.

Purpose:

The purpose of this study was to investigate the relationship between factors in the home environment and awakened musicality at kindergarten entrance. The effect of the organized musical experiences of one semester of kindergarten was also studied.

Procedure:

A tape recording was made of the singing of each child in 6 kindergartens at kindergarten entrance. Five judges evaluated the recordings and rated each child's singing. Each child was placed in one of four groups according to his average score. The upper 2 groups were classified as musically awakened.

The parents of each child were then interviewed in their homes. Factors in the home environments were compiled into percentages and assigned to the child's group. Common factors of environment identified in significant percentages in any of the 4 groups were deemed pertinent to the purpose of the study. This procedure was repeated after one semester of kindergarten.

Results:

Of the 85 children, 11 were found to be musically awakened at kindergarten entrance. Factors contributing to the musical awakening were summarized as being "the exposure to attractive musical experiences in a permissive and encouraging atmosphere" and "parental understanding and appreciation of the values of music in the life of their child."

Rhoden, Jane Otwell. "A History of Music Written for Preschool Children." Unpublished Ph. D. dissertation, The Florida State University, 1969. Dissertation Abstracts, XXX, 2065-A.

The author reviewed approximately 3100 children's songs composed since 1800, investigated literature related to child development and preschool education, and assembled examples of songs used with young children.

Rhoden states that Froebel took songs and games and adapted them to the learning experiences of young children. Music activities prior to 1900 were designed to help the child learn to sing. Enjoyment of music was secondary in importance. This type of musical activity continued through the 1930's, although toward the end of this period music was combined with other activities. Since about 1940 the emphasis has been on helping the child to be free and creative with music and to enjoy himself. Songs are related to people, occupations, animals, seasons, and other things which are familiar to the child. Melodies have been relatively simple, although some are pitched too high for comfortable singing by the young child.

The author has included examples of songs depicting the changes which have occurred since the time of Froebel. Also included are current publications available for use with the preschool child.

A review of this dissertation by James B. Fitzpatrick appears in Council for Research in Music Education Bulletin, XXV(1971), 42-5.

Richardson, Helen Virginia. "An Experimental Study Utilizing Two Procedures for Teaching Music Reading to Children in Second Grade." Unpublished Ph.D. dissertation, University of Wisconsin, 1971. *Dissertation Abstracts*, XXXII, 3354-A.

Purpose:

The purpose of this study was to assess the effectiveness of the following two methods of teaching a vocabulary of tonal configurations:

Method 1: A structured, sequential presentation of selected tonal vocabulary patterns and song materials.

Method 2: The same materials presented in random sequence.

Procedure:

Twenty melodic patterns in a single tonality were selected. Two classes of 32 2nd graders each were designated as experimental groups, and 2 classes of 28 2nd graders each were designated as control groups. The experimental groups received instruction in 3 25-minute sessions per week for 18 weeks with one experimental group being instructed by Method 1 and the other by Method 2. The Line Diagram Test of Tonal Configurations was given to all groups as a pretest and a posttest, and the t test was applied to the gain scores. Recall, Notation, Performance, Pattern Identification, and Retention Tests were devised and administered, and t tests were applied.

Results:

Null hypotheses of no significant difference in achievement, recall, performance, pattern identification and retention between subjects regardless of the sequence of the presentation of the vocabulary patterns were accepted. The null hypothesis of no significant difference in notation between subjects learning a vocabulary of patterns presented in a structured sequence and subjects learning the same vocabulary in a non-structured sequence was rejected.

A review of this dissertation by Janice J. Klemish appears in *Council for Research in Music Education Bulletin*, XXX (Fall, 1972), 47-50.

Rieber, Morton. "The Effect of Music on the Activity Level of
Children." Psychonomic Science, III(1965), 325-6.

Purpose:

The author undertook to investigate the effect of music on the activity level of 5- and 6-year-old children.

Procedure:

Twenty-nine children, ages 5 and 6, were tested individually. There were 13 girls and 16 boys. The child was placed in a specially designed playroom, equipped with various toys, for 12 minutes. Fifteen of the children heard no music during the first 3 minutes, fast music during the second 3 minutes, no music during the third 3 minutes, and slow music during the last 3 minutes. The other 14 children heard no music during the first and third 3-minute periods, slow music during the second 3 minutes, and fast music during the last 3 minutes.

Results:

Activity rates were higher during the periods when music was played. Fast music had the more marked effect on activity rates.

Romanek, Mary Louise. "A Self-Instructional Program for the
Development of Musical Concepts in Preschool Children."
Unpublished Ed. D. dissertation, The Pennsylvania State
University, 1971. Dissertation Abstracts, XXXII, 2556-A.

Purpose:

The purpose of this study was to devise and evaluate a self-instructional program for the development of 3 musical concepts (pitch, duration, and loudness) in preschool children.

Procedure:

A pilot study was conducted to develop, test, and revise the programed materials. The programed materials consisted of taped lessons with illustrated books to accompany them. Each lasted 20 minutes. The lessons were independent units of instruction in story form. The response modes required were singing, moving, pointing, drawing circles and lines, playing various musical instruments, and turning the page at a signal (castanet). Sixty-two children, ages 46 to 65 months, took part in the study, with 20 in the pilot and 42 in the main study. All were given the Peabody Picture Vocabulary Test to determine mental age. The experimental group was given a pretest, the 10-lesson program and a posttest, while the control group was given the pretest and posttest with a 10-day interval in between. Both the pretest and posttest were the investigator's Preschool Musical Concepts Test.

Results:

1. The null hypothesis that there was no difference

between the mean pretest and posttest scores of the preschool children receiving the program was rejected at the .05 level of confidence for the pilot and at the .001 level for the main study.

2. The null hypothesis that there was no difference between the pretest scores of preschool children matched according to mental age was retained.

3. The null hypothesis of no difference between the mean posttest scores of the experimental and control groups was rejected at the .001 level of confidence. Children receiving the experimental program did make higher scores on the Preschool Musical Concepts Test than did children not receiving the program.

Conclusions:

Preschool children can easily acquire the concept of loudness. Pitch and duration seemed difficult to perceive. The subjects reacted favorably to the program and were anxious to return each day.

A review of this dissertation by Robert E. Nye appears in Council for Research in Music Education Bulletin, XXIX(1972), 58-60.

Rowen, Betty J. "Developing Aesthetic Concepts Through Movement."
Council for Research in Music Education Bulletin, IX (1967), 45-59.

Purpose:

The purpose of this study was to describe a program for primary children aimed at developing aesthetic sensitivity through body movement, exploration, and expression.

Procedure:

A 2nd-grade class made up of students from a wide range of socio/economic backgrounds was chosen to test the program. The program consisted of activities using movement to develop 5 "key concepts:"

1. Art as expression of essential quality.
2. Art as relation of content and form.
3. Art as immediate experience.
4. Art as symbolization.
5. Art as comprised of basic elements.

The sessions met for 16 weeks, having 2 1-hour classes per week. The first session was an individual interview with every student. Each session was tape-recorded, and 2 observers (the classroom teacher and a dance specialist) recorded observations for each child on a specially designed form. Observations were made on a 5-point scale, beginning with "absence of response" and ending with "strong response." A folder was maintained for each child. Individual profiles were written for each of the 22 children at the conclusion of the study.

Results:

1. Children generally responded enthusiastically to all the sessions.
2. The strongest response was to rhythm.

3. Most of the class responded strongly with a feeling for the quality of sound.

4. Less response was shown to color, texture, line and shape.

5. The use of a coordinating theme motivated children and increased their interest.

6. Children showed an awareness of dominance and pattern when it was pointed out to them.

7. Children seemed to develop keener powers of observation and greater originality of expression.

8. The classroom teacher reported a carry-over to other curriculum areas.

9. Children showed individual styles of behavior and areas of greater sensitivity which increased as the study progressed.

Schuckert, Robert F., and McDonald, Ruth L. "An Attempt to Modify the Musical Preferences of Preschool Children." Journal of Research in Music Education, XVI (Spring, 1968), 39-44.

Purpose:

The purpose of this study was to determine if controlled exposure to musical types less preferred by children would be instrumental in broadening the musical appreciation of pre-school children. The hypothesis was that significant preference shifts would occur in the subject's musical hierarchy as a function of repreated exposures to the musical excerpt originally less preferred.

Procedure:

The subjects were 20 children between 4 and 6 years of age in nursery school at the University of Tennessee. In the first phase the children were asked individually to make a preference between 2 types of music classified as classical and jazz. Subsequently, in 4 sessions the children were exposed individually to the music less preferred while they were given materials to examine, such as puzzles. After 4 such sessions the subjects once again were asked to state their preference.

Results:

The experimental procedure failed to produce significant shifts in the preference hierarchies of subjects as a function of repeated exposures to less preferred music. The possibility must be considered that induced familiarity does not foster shifts in the musical preference of pre-school children.

Shelton, John Stanley. "The Influence of Home Musical Environment Upon Musical Response of First-Grade Children." Unpublished Ed. D. dissertation, George Peabody College for Teachers, 1965. Dissertation Abstracts, XVII, 6765.

Purpose:

The purpose of this study was to find factors in the preschool home musical environment which influence the musical response of 1st-grade children. The author also considered kindergarten and church school attendance.

Procedure:

Music teachers in 5 schools in Cape Girardeau, Missouri, selected 18 1st graders as most musical and 12 1st graders as unmusical, based on (1) ability to sing in tune, (2) discrimination of pitches and melodic direction, (3) response to rhythms by bodily movement and by playing instruments, and (4) response to contrasting tempos and moods while listening. The author interviewed the parents and other family members of each subject in their homes and also interviewed the subjects' kindergarten and church school teachers. The homes were rated as musical, average, or unmusical.

Results:

Of the 18 musical children, 3 were from musical homes, 11 were from average homes, and 4 were from unmusical homes. Of the 12 unmusical children, 1 was from a musical home, and 11 were from unmusical homes. 75% of the musical homes produced musical children, while 73% of the unmusical homes produced unmusical children. The relationship between home environment and the child's musical response was statistically significant.

These factors show close relationships to musical response:

1. frequent opportunities for the child to hear singing in the home,

2. frequent opportunities to sing with other family members, especially the mother,

3. frequent opportunities to hear records in the home,

4. the ability of the parents to sing and learn new songs.

A smaller relationship was found between attendance at kindergarten and/or church school and musical response.

A review of this dissertation by Marvin Greenberg appears in Council for Research in Music Education Bulletin, XVII(1969), 55-60.

Shoemaker, Charlotte F. P. "Six- and Seven-Year-Old Children
Discover Musical Meanings." Unpublished Ed. D.
dissertation, Columbia University, 1967. Dissertation
Abstracts, XXVIII, 1352-A.

Purpose:

This project attempted to show that musicianship can be developed best in young children when the fundamental principles, basic elements, and key concepts of music are stated so simply that children understand them and desire to explore the field.

Procedures:

The Teacher's Guide was prepared for music teachers and classroom teachers. It "promotes the use of music as a channel for personal communication by presenting and developing procedures for designing and notating musical snippets, and simple melodies. The musical techniques and ideas are based on frequent testing, experimentation, change, and re-evaluation in the classroom." The expressive elements of music provide the basis for study--timbre, tempo, dynamics, and mood, plus rhythm, melody, and harmony. Form is related to materials and objects in the child's environment. Three developmental stages were recognized in planning activities: (1) sensory perception, (2) representation or transformation, and (3) application and evaluation. Other procedures included encouraging children to help plan and evaluate activities, making charts of child growth, photography of children in class activities, and relating key ideas in music to those in reading, math, and science.

Conclusion:

When the suggested elements of this project were observed, listening became more purposeful and children's musical involvement in and out of class increased.

Sieh, Eleanor Anne Becker. "Materials Designed to Use in Primary and Middle Schools for Instruction in Music Reading Using Selected Musical Instruments." Unpublished Ed.D. dissertation, Columbia University, 1973. Dissertation Abstracts, XXXIV, 2180-A.

Purpose:

The purpose of this dissertation was to provide a means through which children could learn to interpret music symbols.

Procedure:

Materials were developed for use in either traditional or open classrooms with classroom instruments available. In order to develop the materials, general music instructional practices were reviewed, information about the process of reading written symbols were studied, guidelines for developing specific objectives were stated, and musical instruments for suggested use were selected.

The author includes a history of "Music Reading in Public School Instruction" and a review of the process of reading written symbols with relation to reading music notation.

The materials contain lists of objectives and are designed for 4 levels of instruction:

1. Look, Touch, and Play Musical Instruments -- pre-kindergarten through grade 1
2. Making Music From Notation -- grades 1 to 3
3. Sound Symbols for Musical Instruments -- grades 3 to 5
4. Skill in Playing from Music Symbols -- grades 5 to 8.

Activities in the areas of exploration, skill development, improvisation and composition, and performance are provided for each level.

Simons, Gene M. "Comparisons of Incipient Music Responses Among Very Young Twins and Singletons." Journal of Research in Music Education, XII(Fall, 1964), 212-26.

Purpose:

This research was undertaken for the basic purposes of determining specifically the incidence and nature of spontaneous and evoked music responses among very young twins and singletons, and making appropriate inter-pair and intra-pair comparisons of their responses.

Procedure:

Subjects for this research were twelve pairs of same-sex twins ranging in age from 9.2 months to 31.4 months, and an equal number of singletons matched to the twins by age and sex. Tests and observations of subjects took place in the children's homes at monthly intervals for four consecutive months.

The observation schedule included observation of (1) gross responses to music stimuli, (2) imitative responses to music stimuli, and (3) free-play activities.

Results:

Four general hypotheses were tested with these conclusions:

1. Combined aggregate scores of twin-pairs were significantly less than those of singleton-pairs, so the null hypothesis that there is no significant difference in the frequency or degree of response between paired twins and their corresponding

singleton controls was rejected.

2. The null hypothesis that there is no significant difference in the evocative power of specific music stimuli was rejected.

3. Various observation periods' response scores did not differ significantly, so the null hypothesis that there is no significant difference in response scores of various observation periods was not rejected.

4. Intra-pair differences were not statistically significant, so the null hypothesis that there are no significant differences in intra-pair differences of twin-pairs and intra-pair differences of singleton-pairs was not rejected.

The author suggests that if children's music experiences normally introduced in kindergarten and primary grades were begun at the preschool level, it might serve to hasten, broaden, and deepen the ultimate musical development of the child.

Smith, Robert B. "The Effect of Group Vocal Training of the Singing Ability of Nursery School Children." Journal of Research in Music Education, XI (Fall, 1962), 137-41.

Purpose:

The purpose of this study was to determine if it were possible to train larger groups of pre-school children to become tuneful singers.

Procedure:

A group of 20 3-year-old children and a group of 21 4-year-old children received 15 to 20 minutes of vocal training each day for 2 16-week semesters. Two techniques were consistently employed: (1) songs were always performed in the same tonality, and (2) 2 vocal ranges were used in the training--lower range c' to a' and upper range a' to e". A control group was selected post facto in order to determine improvement due to training.

Results:

1. Large group vocal training was successful.

2. Training in the lower range produced more general improvement.

3. The author suggests that further research is needed to determine whether early group training helps the child maintain superior accuracy over those whose training begins later.

Spiegler, David Michael. "Factors Involved in the Development of Prenatal Rhythmic Sensitivity." Unpublished Ph.D. dissertation, West Virginia University, 1967. Dissertation Abstracts, XXVIII, 3886-B.

Purpose:

This study tested the hypothesis that auditory rhythmic sensitivity in newborns is acquired as a function of repeated exposures to rhythmic auditory stimulation experienced prenatally.

Procedure:

Forty full-term neonates, 11 male and 29 female, between 24 and 48 hours old and between 5 and 9 pounds in weight, comprised the sample. The babies were assigned to 4 equal groups of ten, and 20-minute tape recordings at 75 decibels of (1) rhythmic heartbeats, (2) dysrhythmic heartbeats, (3) rhythmic clicks, and (4) dysrhythmic clicks were played for them. A 4x4 Latin Square was used, wherein each child was observed under every condition once. A 20-minute quiescence period preceded the stimulation period each time as a basis for change score comparisons. A Stabilimeter counter apparatus was used to measure activity level. The data were analyzed as change scores in a Latin Square analysis of variance with repeated measures. Duncan's New Multiple Range Test was used to compare the mean differences between the 4 treatment conditions.

Results:

Findings support the hypothesis that the fetus "habituates" to a rhythmic auditory environment prenatally and is able to discriminate surprisingly minute fluctuations in this stimulus pattern post-natally. The results also show the importance of considering qualitative stimulus gradations in infant studies.

Taebel, Donald Kenneth. "The Effect of Various Instructional Modes on Children's Performance of Musical Concept Tasks." Unpublished D.M.A. dissertation, University of Southern California, 1972. Dissertation Abstracts, XXXIII, 6957-A.

Purpose:

The purpose of this study was to study the development of certain musical concepts in kindergarten, first and second grade children. Specific problems were:

1. to determine the effects of four different instructional modes on the performance of tasks embodying the selected musical concepts
2. to determine age level differences in performance
3. to measure and evaluate concepts of louder, faster, higher, and shorter in young children as elicited by the measuring instrument.

Procedure:

Two independent samples were selected from public and parochial schools. A measuring instrument was developed by the author in a short and long form. 126 children were given the long form, and 260 children were given the short form of the test. The children were divided into 4 nearly equal treatment groups. The same orientation instructions were given to each group, but subsequent instruction for each group differed. The four modes of instruction used (one for each group) were: (1) discovery, (2) verbal cue, (3) verbal response, and (4) motor response.

Results:

1. Significant differences were found in performance between scores of tests embodying different concepts. Level of performance appeared to be a function of the stimulus features of the task and the accessibility of the concept. From most to least used

the concepts were loud

2. Significant difference

between age levels. O

3. The effect of instruct

r, faster, shorter, and higher.

were found in performance on all tasks

der children performed the tasks better.

onal mode was not shown to be significant.

Thomas, Ronald B. Manhattanville Music Curriculum Program. Final Report. Department of Health, Education, and Welfare, Office of Education Bureau of Research. Washington, D.C.: August, 1970.

Purpose:

The purpose of the MMCP was to develop a music curriculum for sequential learning for students in grades 1 through 12, with emphasis placed on "discovery" procedures and the students' intuitive and inductive reasoning abilities. In addition, a teacher training program for this curriculum was to be developed.

Procedure:

Phase one--experimentation: Much of this phase was spent in exploring various types of teaching strategies in classrooms. Traditional or accepted practices were set aside or challenged in a quest for new insight about educational procedures which had meaning for children.

Phase two--curriculum development: In phase two, information gained in the exploratory phase one was refined and synthesized into a curriculum. This began with a rationale identifying the fundamental characteristics of music, then the curriculum was designed to be well integrated in consideration of the student, the subject, and educational objectives.

Phase three--(a) field testing, (b) early childhood curriculum, (c) plans for teacher training, (d) development of an assessment instrument. Cooperating schools served either as experimental stations or field centers. Promising teaching strategies developed in the experimental schools were passed on to the field centers. All curriculum plans were proven operationally.

As it became evident that the new spiral curriculum was not appropriate for very young children, a pre-cycle program was explored in cooperation with the Central Atlantic Regional Educational Laboratory. This work, which paralleled the work of phase one, involved children of ages 2 to 9 years, many of whom were from deprived areas.

Experimentation with teacher reeducation began in many field centers through in-service programs, and later in summer workshops. Basically, the teacher reeducation was intended to develop new musical and educational understandings and views which were consonant with the purposes of the MMCP.

A survey of available assessment materials revealed none that "dealt with analytical, judicial or creative thought in purely aural terms, or which were compatible with the sequences of conceptual development of the new curriculum." It was therefore necessary to construct an assessment instrument appropriate to this program. One model was completed but wide scale testing of the instrument was not possible due to time limitation.

Results:

(Note: While a description of the full project has been abstracted above, the results of only the Early Childhood Music Curriculum will be reported here because the remainder of the research is outside the scope of this monograph.)

A total of 16 classroom teachers and musician-educators contributed to the development of the early childhood music curriculum called Interaction, designed for children of ages 4 to 8 years. The curriculum focuses on creative thinking and practice in the behaviors of a musician. In many classes music was employed in virtually the entire educational experience, from reading and science to play activities.

Interaction is process oriented: neither body of content nor sequence of experiences is predetermined. Classroom experiences are structured around five developmental phases of musical exploration: free exploration, guided exploration, exploratory improvisation, planned improvisation, and reinforcement.

Interaction also includes a glossary of terms, a list of unconventional sound sources, a bibliography and a discography.

Tipton, Eleanor Laura. "A Listening Program of Instrumental Music for the Elementary Schools." Unpublished Ed. D. dissertation, Columbia University, 1962. Dissertation Abstracts, XXIV, 772.

Purpose:

The purpose of this study was to design a program of instrumental music for the elementary schools which would foster musical responsiveness and musical growth, provide a wider acquaintance with the cultural heritage of serious music and help children and teachers develop a more discriminating taste in music.

Procedure:

The program included: (1) a balanced program of serious orchestral music for grades 1 through 6, and (2) teaching notes for concrete help in planning and presenting listening experiences with children. Criteria for selection of orchestral music included: (1) the needs and interests of children of a certain age group, (2) the suitability of music to the maturity level of children of a particular age group, (3) quality of music, and (4) a balanced program of music of representative composers and styles from the Baroque to the present day.

The format for the teaching notes included: (1) background information, (2) highlights of the music, (3) classroom activities, (4) related art, and (5) related listening.

Woskowiak, Leona Frances. "Programmed Music Reading Games for First Grade Utilizing Certain Principles of Dalcroze, Kodaly, and Orff." Unpublished D.Ed. dissertation, The Pennsylvania State University, 1973. Dissertation Abstracts, XXIV, 1959-A.

Purpose:

The purpose of this study was to develop and evaluate programmed music reading games for first-graders which use principles of music development suggested by Dalcroze, Kodaly, and Orff.

Procedure:

Twenty-four subjects between the ages of 67 and 90 months were randomly selected from 40 students in the first level at the Akeley Campus School of Lock Haven State College, Lock Haven, Pennsylvania. Four of the subjects participated in a pilot study, with the other 20 subjects participating in the main study. A 1-group posttest only design was used. Nineteen 25-minute games developed by the author were presented over a period of 6 weeks. The games presented music reading material in 2- and 4-measure melodies and rhythms performed on resonator bells, drum, rhythm sticks, and tambourine and included a prerecorded cassette tape and a booklet. Evaluation of the programmed games was performed by a criterion-referenced Measure of Music Reading Skills constructed by the author. The test consisted of performance by each student of 5 4-measure rhythms on the drum and 5 4-measure melodies on the resonator bells. An individual criterion level of 80 per cent and a mean criterion level of 90 per cent were established. The pilot study revealed that minor revisions were needed in order to meet these specifications.

Results:

All subjects in the main study attained posttest scores within the

80 per cent criterion level. A mean percentage correct for the main study of 91.40 was attained. The results indicate that the first-graders in this study were able to acquire both rhythmic and melodic music reading skills.

Yarborough, William. "Demonstration and Research Program for Teaching Young String Players." Council for Research in Music Education Bulletin, XII(1968), 26-31.

Purpose:

The purpose of this program was to develop a simple numerical method of teaching string players along with developing the musical ear and knowledge of the young student.

Procedure:

Twenty-five children (ages 6 to 10) were selected by audition. Half the group received instruction by the numerical method and the other half received conventional instruction. The children first received 3 weeks of intensive training under master teachers and then one year of private instruction by local string teachers. The numerical method was designed to allow students to concentrate on basic technique in the early stages of instruction with conventional notation being introduced gradually after this initial period.

Results:

After the initial 3 week period the students of the numerical method were judged to have progressed, technically, the equivalent of 6 months to a year of ordinary study. Each student also gained a basic knowledge in ear training, melodic training, the theory of sound, and ensemble playing.

Young, William T. An Investigation of the Singing Abilities of Kindergarten and First Grade Children in East Texas. Research in Education (ERIC), Department of Health, Education, and Welfare, Office of Education. Washington, D.C.: August, 1971.

Purpose:

The overall purpose of this investigation was to study the singing abilities of kindergarten and first grade children. Information was sought concerning:

1. A comparison of singing ranges of kindergarten children with ranges of first grade children.

2. The vocal range in which accurate singing could be expected from the majority of children.

3. The relative ease with which children could sing major and minor melodies.

4. The developmental stages of musical growth of kindergarten and first grade children.

Procedure:

The subjects for this study were 100 kindergarten and 100 first grade children drawn from a total of 13 classrooms of 7 schools situated in 3 communities. Home environments of the subjects ranged from disadvantaged to affluent.

A criterion test was individually administered to each child. The test, presented as a game, was 6 to 10 minutes in duration. Each item was played on a song bell set, then sung by the examiner, after which the child was asked to sing the item. This sequence was repeated for each item. The entire testing procedure was tape recorded for later evaluation. Only the better response for each item was scored.

Results:

1. The child in this stage of development habitually uses his speaking voice instead of his singing voice.

2. The child will normally sing in a vocal quality; but melodic direction is not consistently correct.

3. Two types of singers were identified:

    a. Those who sing at the proper pitch level but evidence intonation problems.

    b. Those who transpose the entire melody.

4. The child will sing most of the melody accurately.

It was further concluded that the vocal range of girls is lower than that of boys, blacks lower than whites, and that white children have a wider singing range than comparable black children.

Young, William T. "The Preschool Disadvantaged: A Study in Music Teaching and Learning." Research report presented at the Music Educators National Conference National Convention, Atlanta, Georgia, March, 1972. Abstracted in Journal of Research in Music Education, XX(Summer, 1972), 229-30.

Purpose:

The purpose of this study was to determine the effectiveness of a structured instructional program for improving the musical abilities of disadvantaged preschool children.

Procedure:

Two advantaged and 2 disadvantaged groups of preschool children were used with 1 of each serving as control groups and 1 of each as experimental groups. The experimental groups received instruction in musical concepts through a structured lesson series.

Results:

1. Initially, the level of musical ability of the typical disadvantaged child was significantly inferior ($p < .01$) to that of the typical advantaged child.

2. The disadvantaged experimental group displayed significantly higher musical ability levels than the disadvantaged control group after the training sessions.

3. There appeared to be no difference in the disadvantaged experimental group after training and the advantaged control group which received no training.

4. The typical disadvantaged child required a longer

period of time to learn musical concepts than the typical advantaged child.

5. The typical disadvantaged child appeared to be capable of assimilating the same number of concepts as the advantaged child.

6. The musical growth patterns for advantaged and disadvantaged groups appeared to be the same where the structured training program was provided.

Zimmerman, Marilyn Pflederer, and Sechrest, Lee. "Brief Focused Instruction and Musical Concepts." Journal of Research in Music Education, XVIII(Spring, 1970), 25-36.

Purpose:

The purpose of this study was to test the effects of a brief period of instruction focused on the development of conservation skills in music listening. A secondary purpose was to refine procedures used in previous studies.

Procedure:

A test tape was made consisting of four tasks. Four phrases taken from Bartók's music For Children were used as standards. Each phrase was paired with each of 8 deformations of the phrase: no change, change of rhythm, change of instrument, change of harmony, change of contour, change of interval, change of mode, and change of tempo. A partially counterbalanced design was employed using 4 test tapes. On each test tape the order of the items within each task was altered. The experimental training tape contained one task of 8 items. The first 6 bars of "America" was used as the standard and was paired with each of the 8 deformations. The order of items on the training tape was not similar to the order of any of the test tapes. The deformations were discussed in the training sessions. A control training tape was made up of phrases from the elementary repertoire using no standards of comparison.

The subjects were 37 5-year-olds, 70 7-year-olds, 51 9-year-olds, and 40 13-year-olds from 3 elementary and 2 junior high schools. None of the subjects had received private music instruction. They were randomly assigned to the experimental and control groups. After a training session each subject was tested individually. The test lasted about 30 minutes. Subjects were asked if the paired items were the same or different and, if different, how were they different and if they were the same in any way. They were also asked to tell how they knew their responses and to tell more about what they heard. All responses were tape-recorded and transcribed later. The qualitative responses were converted into 2 types of quantitative scores (recognition and conservation) for analysis. The correlations of judge agreement in scoring ranged from .74 for change of interval to .97 for change of instrument. The range of possible scores for each type of stimulus was from 0 to 24.

Results:

1. Older children received consistently better recognition scores than the younger children.

2. The experimental group received consistently better recognition scores than the control group for all types of stimuli except repetition of the original (no change).

3. The interaction of age and type of stimulus was highly significant for recognition scores. ($p < .01$)

4. The interaction of age and type of stimulus was highly significant for conservation scores. ($p < .01$)

5. Older children received consistently higher conservation scores than younger children.

6. No effect of the experimental instruction was obtained

for the conservation scores.

7. Repetition of the original stimulus evoked good conservation-type responses.

8. Harmony, tempo, change of interval deformations produced more conservation responses than did instrument, rhythm, and mode deformations.

Zimny, George H. and Weidenfeller, Edward W. "Effects of Music Upon GSR of Children." Child Development, XXXIII(1962), 891-6.

Purpose:

The authors attempted to determine if exciting music and calming music would have the same kind of effect on the galvanic skin response of children as it had been found to have on that of 20-year-old college students[1] and of 50-year-old psychotics.[2] It was hypothesized that the exciting music would produce a decrease and the calming music would produce an increase in electrical skin resistance.

Procedure:

The subjects were 18 kindergarten, 18 third-grade, and 18 sixth-grade students from one public elementary school in a middle class area. A 6-minute portion of the final movement of Dvorak's New World Symphony served as the exciting piece, and a 6-minute portion of Bach's Air for the G String served as the calming piece. A tape of these selections was played for each subject individually while their GSR was measured continuously using a psychogalvanometer. The order of the presentation of the music was varied. GSR was measured for 1 minute before each piece was played and for 1 minute after each piece was played. There was also a 3-minute rest period between the 2 pieces.

Results:

The hypothesis of differential effects of the exciting and calming music was confirmed for each group. Exciting music produced positive GSR values, indicating a decrease in electrical skin resistance and an increase in emotional excitement. Calming music had the opposite effect. Children proved to be more responsive than either the college students or the psychotic.

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[1] G.H. Zimny and E. W. Weidenfeller, "Effects of Music Upon GSR and Heart Rate," American Journal of Psychology, (n.d.)

[2] E. W. Weidenfeller, and G. H. Zimny, "Effects of Music Upon GSR of Depressives and Schizophrenics," Journal of Abnormal Social Psychology, LXIV(1962), 307-312.

Baird, Sally. "A Technique to Assess the Preference for Intensity of Musical Stimuli in Young Hard-of-Hearing Children." Journal of Music Therapy, VI(Spring, 1969), 6-11.

Purpose:

The purpose of this study was to determine what decibel level of auditory stimuli (music) would maintain response in young hard-of-hearing children.

Procedure:

Four tapes of children's music were made and the volume control of the tape recorder was manipulated until the tapes could be calibrated at 90, 80, 70, and 60 decibels. A sound level reading was made of the room at 3 different times at 44, 49, and 61 decibels. Ten subjects were observed individually for 5 minutes daily. There were 4 boys and 6 girls; 6 were ages 3 to 4, and the other 4 were kindergarten age. All the children were of average or above intelligence and had hearing loss as diagnosed by a physician. Each subject came into the room alone and was seated at the table. The examiner helped the child with his head phones and left the room. The child could then push one of 5 . buttons on a box on the table. Four buttons produced children's music at different decibel levels, and the other button produced ambient noise. Each time the child pressed a button a corresponding light came on in the examiner's room. The examiner timed each light with a stopwatch. The cumulative time of each button was recorded at the end of each session. The positions of each decibel button and the ambient noise button were randomized daily. The procedure for each child went through 4, 5, or 6 phases. All subjects were examined binaurally, right ear alone, left ear alone, and binaurally again. Some also had phases in which 1 and 2 decibel levels were not available.

Results:

All subjects except one showed an obvious preference for a particular decibel level. When that level was removed, sometimes the subjects did not seem to discriminate at all or did not press any keys. The author felt that a comparison between an audiogram and the data obtained in this study was essential before definite conclusions could be drawn. Music of specified intensity did maintain responding in all subjects.

Di Fronzo, Robert Francis. "A Comparison of Tachistoscopic and Conventional Methods in Teaching Grade Three Music Sight-Playing on a Melody Wind Instrument." Unpublished Ph. D. dissertation, University of Connecticut, 1966. Dissertation Abstracts, XXVII, 3364-A.

Purpose:

The purpose of this study is to compare the effectiveness of conventional and tachistoscopic methods of teaching pre-instrumental music reading in grade 3 using a recorder-type instrument.

Procedure:

1. Two 3rd-grade classes from 1 elementary school were selected to be the control and experimental groups.

2. Both groups were taught methods stressing tonal patterns. The control group used conventional drill procedures, while the experimental group used tachistoscopic drill procedures.

3. The McCreery Elementary Rhythm and Pitch Test was given to all subjects to get measures of musical aptitude including pitch and rhythmic discrimination and tonal memory.

4. A criterion test was constructed by the author to measure the melodic-rhythmic sight-reading ability of all subjects and was given as a pretest. The subjects' responses were tape recorded.

5. A Keystone tachistoscope was used with the experimental group. Each group received 18 weekly lessons of 40

minutes each.

6. The posttest was administered and individually taped.

7. The tapes were audited to get pretest and posttest scores for each subject.

Results:

1. The tachistoscopic training was significantly (p = .01) more effective in teaching melodic-rhythmic sight-playing than the conventional training techniques.

2. The gains of each group were significant at the .01 level.

3. The correlation between rhythmic discrimination and gains on the criterion test was significant at the .05 level. Tonal memory and pitch discrimination factors had moderately small correlations with gains on the criterion test.

A review of this dissertation by Warren F. Prince appears in Council for Research in Music Education Bulletin, XVI(1969), 50-4.

Goldstein, Carol. "Music and Creative Arts Therapy for an Autistic Child." *Journal of Music Therapy*, I(December, 1964), 135-8.

Subject:

The subject was an 8-year-old autistic girl, diagnosed Schizophrenic Reaction Childhood Type, having had a mental age of 3 years on admission to Essex County Overbrook Hospital. Her behavior exhibited many characteristics of childhood autism: fascination by monotonous rhythm, rocking, swaying, comfortable only with sameness; short attention span; hallucinations; resistance to participation; tantrums; little verbal communication; self-directed aggression and hostility. When she was in contact, she was quick to respond with a keen retentive ability.

Program:

The subject was put into a daily program with 4 people: the therapist in charge, 1 assistant, and 2 internes. An observer was also part of the team. The sessions were divided into speech dynamics, singing, dance, movement to music, and art. Immediate goals were to establish rapport, enlarge vocabulary, and acquaint the subject with basic skills. The long-term goals were: (1) increase her attention span and tolerance level, (2) increase body awareness, and (3) help her to establish relationships with human beings through music, language, and body movement as means of communication.

Techniques:

In general, the therapist proceeded from the familiar to the unfamiliar. When the subject became distracted, her attention was refocused by introducing something familiar.

1. In singing, pictures were used to help her relate to the subject matter of the song. Simple action songs were used, and music with use of percussion instruments aided in rhythm and coordination.

2. Dance sessions came twice weekly with specific body movements related to actions she would perform in everyday life.

3. Art work included making up stories to accompany pictures cut from magazines, drawing and cutting to strengthen motor coordination, and finger painting as a channel for free expression.

4. Speech dynamics aimed at helping verbalize aggression through the voice, speech, postures, and gestures.

5. Play therapy included the use of a doll house through which hostility toward family and siblings seemed to be directed.

Guidelines were consistency, gentle firmness, and acceptance based on genuine affection. Precautions were taken against over-dependency on 1 person and against threatening punishment.

Evaluation:

After 6 months in the Music Department Program an increase in mental age of 10 months was shown on the Stanford-Binet Intelligence Scale, Form L. The child's ability to concentrate and her attention span increased markedly. Drawings were more organized and recognizable. She was put into a regular school class on the hospital grounds for 1 hour a day twice weekly and continued to show progress.

Graham, Richard Martin. "The Effect of Early Music Deprivation on the Musical Performance of Institutionalized Mentally Retarded Children." Unpublished Ph.D. dissertation, University of Kansas, 1965. Dissertation Abstracts, XXVI, 3391,

Purpose:

The author attempted to test the hypothesis that "the motivation of a mentally retarded child to perform in a musical situation structured to his abilities will be generally proportional to the amount of music deprivation he has experienced."

Procedure:

The subjects were 32 mentally retarded children having MA's of 4 to 9 years. They were required to perform 2 tasks, one musical and one non-musical, until satiated. Half the group began with the musical task which consisted of tapping out the tune "Hot Cross Buns" repeatedly on 3 diatonically tuned resonator bells. The other half of the group began with the non-musical task which consisted of pounding pegs into a hammer board. After each subject was satiated by his first task, he performed the other task until satiated. The subjects were interviewed and their social histories were read by two judges, who rated each subject's degree of music deprivation.

Results:

1. The more music-deprived subjects spent more time on the musical task than did those subjects who had experienced less music deprivation.
2. The more music-deprived subjects showed a greater increase in time from the first task to the second under both experimental conditions.
3. Although the more music-deprived subjects did make a lower proportion of errors, the difference failed to reach the .05 level of significance.

Joyner, David R. "The Monotone Problem." *Journal of Research in Music Education*, XVII(Spring, 1969), 115-24.

Purpose:

The purpose of this study was to discover the reason certain persons (monotones) consistently fail to reproduce the tonal configuration of melody in a recognizable manner.

Procedure:

A sample of 32 teacher-assessed monotones, having an average age of 11.9 years, were studied. All were given the Bentley pitch discrimination and tonal memory tests and were tested vocally.

Results:

The vocal testing revealed a general poverty of voice production among the subjects and suggested a strong association between untuneful singing and voice production difficulties. It was concluded from the Bentley and voice production tests that partial monotonism was a direct product of the inability to produce the voice normally, while real monotonism results from deficiencies in pitch discrimination, tonal memory, and voice production.

The author states the opinion that many potential monotones could be helped through early training in the command of the vocal instrument.

Larsen, Ronald L., and Boody, Charles G. "Some Implications for Music Education in the Work of Jean Piaget." *Journal of Research in Music Education*, XIX(Spring, 1971), 35-50.

Purpose: The authors intend to:

1. describe in some detail the concrete operations stage of thought development,

2. discuss Piaget's formulas representing types of thought characteristic of this stage, and

3. show implications of this portion of Piaget's theory for music education.

The concrete operations stage covers approximately the ages of 7 to 11 years, during which the child possesses tightly organized systems of thought called groupings. Groupings are logico-mathematical picturizations of abstract structures of classes or relations which the child understands and can manipulate. They fall into these categories:

1. Intellectual manipulation of hierarchically organized class structures.

2. The ability to subdivide intellectually a given class into any number of mutually exclusive sets.

3. Intellectual manipulation of 2 or more stratifications of a single class and the combination of these non-mutually exclusive subclasses.

4. This grouping is like III except it applies to situations where certain combinations are not possible.

5. Intellectual manipulation of single asymmetrical

relations between entities.

6. Intellectual manipulation of single symmetrical relations between entities.

7. Intellectual manipulation of 2 or more asymmetrical relations at one time.

8. Intellectual manipulation of combinations of symmetrical and asymmetrical relations at the same time.

The authors state 2 implications for education:

1. The teacher must provide the needed concrete data for the child to manipulate.

2. The learning situation must be structured so the child is only required to use one grouping at a time in his thought manipulations.

Examples are given to illustrate how a teacher can structure music in terms of Piaget's groupings and provide concrete data to enable the child to work within a grouping and/or move from one grouping to another.

Maltzman, Edward. "An Investigation of Key-Tone Matching with Children and Adults." Unpublished Ed. D. dissertation, Boston University School of Education, 1964. Dissertation Abstracts, XXVI, 407.

Purpose:

The purpose of this study was to test the ability of children and adults to perform a key-tone matching task and to test 3 objective procedures for improving that ability.

Procedure:

A musical task involving a single tone-matching procedure using 3 organ tones and organ keyboard keys in "do,re,mi" configuration was developed and taught to all subjects. Individually heard tones served as stimuli for selection of correct keyboard keys for the tone-matching responses. The subjects were children ages 4 to 11 and adults from age 24 to 78. Adult subjects claimed (a) not to be "musical," (b) not to be able to read music, or (c) not to have had any recent or prolonged music study. The design of the study included an exploratory study, in which the sequences of material were manipulated and performance characteristics investigated, and a controlled experiment in which the reinforcing stimuli were manipulated.

In the controlled experiment these reinforcing procedures were tested:

1. production of the trial tone and a red light signal for the correct response and silence for an incorrect response

2. production of the trial tone for a correct response and silence for an incorrect response

3. production of the trial tone for both correct and incorrect responses.

Results:

1. Data from the exploratory study, which used only the youth subjects, indicated that the key-tone matching task was not easy. Analysis of the data revealed that the behavior patterns were affected by the programed sequences of the material.

2. Data from the controlled experiment revealed improvement in 13 of 14 youth subjects and 10 of 15 adult subjects. Reinforcing Procedures 1 and 2 produced more learning than Reinforcing Procedure 3. Moreover, Reinforcing Procedure 1, in which correct responses were reinforced both with the trial tone and the red light signal, produced more learning than Reinforcing Procedure 2, in which the reinforcing stimulus of the red light was omitted.

Mogilnicki, Robert Leon. "The Educational Implications of Some Writings on the Development of the Affective Domain in Children." Unpublished Ed. D. dissertation, Boston University School of Education, 1968. Dissertation Abstracts, XXIX, 3919-A.

Purpose:

The author's purpose was to study the relation of affect to intellect as it is treated in the works of Herbart, Froebel, Montessori, Dewey, Arnheim, and Kepes.

Procedure:

Selected works of each author were analyzed.

Findings:

1. Herbart: The doctrine of interest represents the internal and external satisfaction in the process of inquiry. Feeling represents the personal significance of learning.

2. Froebel: The doctrine of unity states that a harmony of thinking, feeling and doing is characteristic of the integrated man.

3. Montessori emphasizes sensory education and is concerned with physiological development. No significant relationship is indicated between the refinement of the senses and the mental process of cognition.

4. Dewey's concept of integrated experience is traced through the relationship of experience to facts, art, and nature.

5. Arnheim: The responsibility of education lies in developing a perceptive sensitivity equal to the cognitive and

in establishing a relationship between the two and in providing an appreciation for the expression of felt-thought through media or other language.

6. Kepes' work centers on the education of vision, an integration of emotional, sensory, and intellectual imagery.

Projection:

Educational implications are based on the testimony that affect is of such significant relevance to intellect and motivation that one cannot be considered in isolation from the other.

A review of this dissertation by Ira P. Schwarz appears in Council for Research in Music Education Bulletin, XXI(1970), 55-57.

Monroe, Mary Elizabeth. "A Study of Music Reading in Elementary School Utilizing Certain Related Aspects of Language Reading." Unpublished Ed. D. dissertation, Columbia University, 1967. Dissertation Abstracts, XXVIII, 711-A.

Purpose:

The author investigated aspects of teaching language reading and music reading which might result in greater insight into the music reading process in the elementary school.

Procedure:

The author:

1. examined literature in the areas of curriculum design, principles of education, child psychology, learning processes, language arts, and music education
2. compared the salient features of both reading programs
3. identified features of language reading which might be useful in music reading
4. presented a suggested growth sequence in music reading
5. formulated examples of experiences involving music reading in the primary and intermediate grades
6. summarized the music reading program as a developmental sequence throughout the elementary program.

A review of this dissertation by William T. Young appears in Council for Research in Music Education Bulletin, XVIII(1969), 55-60.

Pirtle, Marilyn, and Seaton, Kay P. "Use of Music Training to Actuate Conceptual Growth in Neurologically Handicapped Children." Journal of Research in Music Education, XXI(Winter, 1973), 292-301.

Purpose:

The purpose of this investigation was to study the effect of musical experiences designed to develop certain musical concepts on the improvement of spatial, temporal, and ordinal concepts in a neurologically handicapped child and in his ability to relate these concepts to their verbal symbol.

Procedure:

Fifteen pairs of children having mental ages of 6 years or below were selected. Each pair of children was matched on the basis of mental age and I.Q. or social quotient. The chronological ages of the subjects ranged from 4 to 12 years. One subject from each pair was randomly assigned to the control group, the other to the experimental group. The level of each child's musical understanding and language development was assessed before and after the experimental treatment by means of nonverbal tests constructed by the experimenters.

The experimental group was divided into 5 comparable groups, each of which received 2 20-minute music sessions per week for 6 months. The activities in these sessions emphasized listening discriminately and were individualized to each child's particular level of development. Both the experimental and control groups continued to participate in their class music sessions.

Results.

1. Results of the musical development test indicated an improvement in the control group at the .05 level and an improvement in the experimental group at the .001 level.

2. The control group made improvements in verbal comprehension significant at the .05 level, but regressed somewhat in vocal integration.

3. The experimental group made improvements in verbal comprehension and in vocal integration significant at the .001 level.

4. The experimental group made greater gains in I.Q. than the control group, but the difference between groups was not significant.

5. The improvement of musical understanding was greater in the experimental group than the control group, the difference being significant at the .001 level.

6. The difference between the scores on the vocal integration and verbal comprehension tests of the experimental and control groups indicate that the experimental group improved significantly more than the control group.

Purrington, Bruce Rollo. "The Instructional Materials Center As It Functions in the Music Education of Children." Unpublished Ed. D. dissertation, Teachers College, Columbia University, 1963. Dissertation Abstracts, XXIV, 5454.

Purpose:

The author intended to promote a knowledge and an understanding of musical materials, of the instructional materials center, of the people concerned with the program, and of the instructional materials program as it functions in the music education of children.

Procedure:

An instructional materials and music education program was developed and a project report was drawn up. The report included the following:

1. A variety of musical materials and resources for annotation for children from kindergarten through high school, including scores, pamphlets, books, serials, charts, pictures, games, films, filmstrips, slides, tape and disc recordings, radio, television, professional musicians, collections of musical materials, public and private institutions, and lay people.

2. Discussion of individuals in terms of services and responsibilities: administrator, director of the center, teacher, and student.

3. Discussion of concepts central to the function of the supporting, building, evaluating, teaching, and coordinating personnel.

Rogers, Barbara Connally. "Contemporary French Music for Children." Unpublished Ph.D. dissertation, The Florida State University, 1966. *Dissertation Abstracts*, XXVII, 1075-A.

Purpose:

The author collected, investigated, and analyzed contemporary French music for children.

Procedure:

Vocal, dramatic, and instrumental works composed for children by 36 French composers in the years since 1913 were studied. Musical characteristics, determined through analysis, were related to the essence of French life (*l'esprit francais*) and to acceptable practices in American music education. An annotated bibliography of approximately 60 compositions and analytical charts are included. The appendix also includes translations of selected portions of the literature.

Seybold, Charles D. "The Value and Use of Music Activities in the Treatment of Speech Delayed Children." Journal of Music Therapy, VIII(Fall, 1971), 102-10.

Purpose:

The purpose of this investigation was to determine the value and use of music activities in the treatment of speech delayed children.

Procedure:

Eight preschool children were randomly selected from the available population of speech delayed children in therapy at the Michigan State University Speech and Hearing Clinic and were assigned to either the experimental or the control group. The mean age was 5 years, 2 months for the experimental group and 5 years, 1 month for the control group. Each subject received individual therapy in 2 50-minute sessions per week for 8 weeks. After 8 weeks the Houston Test for Language Development was given to each subject, and the Mann-Whitney U Test was applied to the raw scores. The therapy for the experimental group consisted mainly of activities based on singing. All activities began with music to stimulate the speech response, after which a related nonmusical activity followed. The therapy for the control group was the regular program for speech delayed children, administered individually.

Results:

The difference between scores of the experimental group and the control group was significant at the .10 level. The author feels that although this level of significance is not satisfactory for drawing conclusions, it does suggest that the therapy used with the experimental group was more successful than that used with the control group.

Shull, Carl N. The Development of an Annotated Guide to Music by Distinguished Composers for Children's Voices. Department of Health, Education, and Welfare, Office of Education Bureau of Research. Washington, D.C.: October, 1970.

Purpose:

The purpose of this project was to provide in practical reference form a comprehensive annotated bibliography of music written by distinguished 19th and 20th century composers for children's voices.

Procedure:

All of the scores listed in Shull's 1960 dissertation (see next abstract) plus many additional works, including those of contemporary composers, were analyzed with respect to text, vocal part(s), and accompaniment. The brief analyses of all these works were then presented in a list alphabetized by composers' names. Approximately 600 works were included.

Shull, Carl N. "A Study of Children's Vocal Literature Written by Selected Distinguished Composers." Unpublished Ph.D. dissertation, The Florida State University, 1961. *Dissertation Abstracts*, XXII, 1205.

Purpose:

The purpose of this study was to determine the nature and extent of music written by distinguished composers for children's voices and to determine the extent to which this literature might be suitable for use in the elementary school singing program.

Procedure:

The music of composers of the nineteenth and twentieth centuries who have achieved sufficient recognition in music compositions to be listed either in *Grove's Dictionary of Music and Musicians* (fifth edition) or *Baker's Biographical Dictionary of Musicians* (fifth edition) was surveyed in order to find those compositions written originally for children's voices alone and not requiring dramatic productions. The music was then analyzed to determine its suitability for the elementary school.

Results:

1. One hundred and twenty-one composers representing 25 nations were found to have written about 1000 titled compositions for children.
2. Many compositions were judged to be inappropriate for use in the elementary singing program because of their length, number of voice parts, range, tessitura, textual factors, complexity of accompaniment, or strongly cultural or nationalistic nature of the text.
3. A large body of songs was found to lie within the vocal and musical capabilities of children and to have interesting and appropriate texts as well.

A review of this dissertation by Bessie R. Swanson appears in the Council for Research in Music Education Bulletin, IV (Winter, 1965), 80-6.

Stern, June Freeman. "The Application of Language Reading Skills to the Teaching of Music Reading in Elementary Schools." Unpublished Ed.D. dissertation, Hofstra University, 1972. Dissertation Abstracts, XXXIII, 150-A.

Purpose:

The author attempted to develop a guidebook incorporating certain generally accepted concepts, developmental steps, and philosophy of reading programs into a music reading program for the elementary school.

Procedure:

A review of literature was conducted. The author surveyed existing school music materials. An informal pilot program was also conducted in order to provide the conceptual framework for the teachers' guide. A teachers' guide for teaching music reading was then developed.

Stevens, Emily, and Clark, Frank. "Music Therapy in the Treatment of Autistic Children." Journal of Music Therapy, VI(Winter, 1969), 98-104.

Purpose:

The purpose of this study was to test the hypothesis that music therapy provides effective techniques for the improvement of prosocial behaviors among autistic children. Prosocial is defined as a broad range of adaptive, adjustive, and socially acceptable behaviors.

Procedure:

The subjects were 2 white and 3 Negro boys ages 5 to 7. They were all from upper-middle socio/economic level families which were intact. Each subject had 1 or more siblings. Two of the Negro boys were brothers. All were diagnosed as autistic or psychotic and could be classified either hyperactive-destructive or passive-phlegmatic. The therapist was a 26-year-old white female who conducted all music sessions for each boy and was the only person with whom the boys had contact. The study had 3 phases: (1) initial assessment, (2) 18 weekly music therapy sessions of approximately 45 minutes each, and (3) final assessment. Assessments consisted of the Autism Scale developed by Ruttenberg *et al*.[1] (used for the pretest and posttest) and video tapes made of the 1st, 10th, and 18th sessions which were rated by judges according to differences in attention span and the degree of involvement in interpersonal relations between the subject and the therapist from the 1st to the final sessions.

Results:

Significant increases in developmental maturity from the 1st to the 18th session were indicated in relationships ($p < .039$), communication ($p < .093$), and mastery ($p < .039$). The data for the Total Autism Scale indicated improvements in scores over the 18 sessions which were significant at $p < .039$. Changes in the level of attention were not statistically significant.

Four of the 5 subjects demonstrated improvement in their social behavior. Parents reported decided improvement in 3 of the 5 cases.

Stubbs, Barbara. "A Study of the Effectiveness of an Integrated, Personified Approach to Learning with Trainable Mental Retardates." *Journal of Music Therapy*, VII (Fall, 1970), 77-82.

Purpose:

The purpose of this investigation was to demonstrate 2 approaches to using music as an aid to trainable mental retardates (TMRs) in learning factual material and certain types of discrimination.

Procedure:

Twenty TMRs were randomly assigned to the control or the experimental group (10 to each group). The mean Stanford-Binet I.Q. was 36.9 for the experimental group and 35.8 for the control. The mean score on the Vineland Social Maturity Scale was 41.4 for the experimental group and 39.2 for the control group.[1] Sessions were held twice weekly for a four week period. The *Meet the Instruments* series (Bowmar) were the materials used for the control group. The experimental group received instruction using materials based on Prokofiev's *Peter and the Wolf*. The recording was supplemented with imaginative color drawings giving personification to each instrument. The presentation of materials was uniform for each group; the instructor used the terms "same" or "different" and "high" or "low" 4 times in each session as part of his discussion. Extraneous remarks were avoided, and facial expressions were controlled. A pre-test and post-test was given. The test was taped and visual aids from the Bowmar *Meet the Instruments* series were shown at the appropriate times. The responses required were identification of same or different instruments, identification of high or low sounds, identification of instrument by sound, identification of instrument by sight and sound, and identification of instrument seen being played (live performance).

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[1] The subjects in this study are referred to as children, but no specific ages are given in this article.

Results:

1. The difference between the pre-test and the post-test scores was significant for both groups.

2. It appears that the experimental approach was more successful than the control approach. The experimental group scored 38.5% better on recognition of instruments than the control group.

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Galloway, H.F., and Bean, M.F. "The Effects of Action Songs on the Development of Body-Image and Body-Part Identification in Hearing Impaired Pre-School Children." Journal of Music Therapy, XI (March, 1974), 125-134.

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SUPPLEMENT TO

EARLY CHILDHOOD MUSICAL DEVELOPMENT

A Bibliography of Research Abstracts

1960-73

Gene M. Simons

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Introduction

This bibliography of abstracts has been compiled for the purpose of bringing together in one monograph virtually all the published research from 1960 through 1973 which deals with the musical responses and development of infants and young children.

The professional literature of educational psychology clearly indicates the effect of learning during early childhood is highly significant. The utilization of this premise by researchers in development of music ability has uncovered new and meaningful information about the ways in which young children learn, and are affected by, music. The range of this research is broad, going from prenatal conditioning to complete music curricula. The number of published research reports on early childhood music (according to our findings) increased steadily since the single report of 1960. There were six in 1963, eight in 1967, thirteen in 1971 and a total of 85 reports through 1973. This is a good beginning but only a beginning. At least three principal tasks remain: (1) many more issues need investigation, (2) researchers and teachers alike need to become familiar with the available literature and (3) research findings of pedagogical significance must be field tested, and successful techniques put into practice.

Research reports selected for inclusion in this publication were limited to those which had as their main purpose the investigation of musical responses, musical behaviors, or general musical development of children from the prenatal stage through approximately age seven years. Eighteen studies somewhat outside this scope have been included under the heading, "Related Studies," because they were deemed as potentially beneficial to early childhood teachers or researchers. The period from 1960 to 1973 was chosen because it is timely and also because of the increasing attention devoted to early childhood music learning during those years.

The abstracts themselves have been presented as factually as possible, with deliberate avoidance of any judgment or evaluation of the research. As an aid to the reader, however, the author has synthesized the research reported herein, and drawn some implications for research and teaching. The sources searched in collecting these abstracts are listed in the bibliography. A number of research reports published after 1973 are listed in the Appendix. It is likely that some studies which should appear here have been overlooked; the author would welcome information concerning such research.

It is our hope that convenient access to these abstracts in one volume may serve to stimulate research and teaching which will effect improvements in music learning at the critical early childhood years.

Botvin, Gilbert. "Acquiring Conservation of Melody and Cross-Modal Transfer through Successive Approximation." *Journal of Research in Music Education*, XXII (Fall, 1974), 226-233.

Purpose:

1. To test the effect of the "successive approximation" procedure upon inducing conservation of melody.
2. To test the effect of combining the successive approximation procedure with another procedure called "verbal rule instruction."
3. To test the hypothesis that generalization would be facilitated by a verbal rule.

Procedure:

Forty-seven girls and 53 boys, predominantly blacks from a low socioeconomic level, were randomly selected from the first grade classrooms of a public school in New York state. Following pretests on conservation of melody, number, mass, weight, and liquid, 60 of the 75 subjects categorized as non-conservers were assigned to one of three groups: (1) successive approximation (SA), (2) successive approximation plus verbal rule instruction (SA-VRI), and (3) no-contact control.

Both experimental groups received conservation of melody training in three twenty-minute sessions. Twelve reinforced incremental discriminations were presented at each session using pairs of familiar melodies, the second of which had been augmented or diminished. Different melodies were randomly inserted as the second melody of a pair to prevent learning a response set. For each trial, children were asked to give a judgment and an explanation.

Subjects in the second experimental group (successive approximation plus verbal rule) were taught the following phrase to aid their understanding of conservation: "speeding up or slowing down a song doesn't change it. . . as long as no tones are added or taken away the song will be the same." This phrase was presented at the beginning of each training session and after each error.

Results:

Only those subjects who identified and explained all pairs of the training melody correctly were categorized as conservers. A chi-square analysis indicated a significant difference between the SA-only and the control group, and between the SA-VRI group and the control group. The difference between the SA-only and the SA-VRI groups was not significant. Both the experimental groups also performed significantly better than the control group on the melody transfer task (i.e., the same tasks used with the training melody were performed using a different melody).

Analyses were done to determined cross-modal generalization of conservation ability. The SA- only group performed significantly better than the control group in conservation of number, mass, and weight, but not liquid; the SA-VRI performed better than the control group on conservation of number only.

The author states that the successive approximation paradigm is effective in inducing a genuine comprehension of the concept of conservation.

Brower, W.C. "An Investigation of Some Relationships Between the Ability to Sing Pitch Sequences and Reading Achievement of Second and Fifth Grade Children." Unpublished D.M.A. dissertation, University of Oregon, 1973. Dissertation Abstracts, XXXIV, 6019A.

Purpose:

This research was undertaken to assess the effects of grade level and sex type on the ability to improve in the singing of pitch sequences. In addition, the study correlated task performance and increase of task performance with (verbal) reading achievement and short-term memory.

Procedure:

The subjects reading achievement and short term memory scores were measured by the Metropolitan Achievement Test and the Auditory Sequential Memory Test. An Exploratory Test of 100 pitch sequences (2 to 7 notes long) was administered to 20 other subjects to establish a hierarchy of item difficulty. Twenty-five of these items were selected to construct the Task Performance Increase Test which was recorded and administered individually to 30 second grade children and 30 fifth grade children. The subjects vocally imitated, as correctly as possible, each of three playings of each item. The increase score was the number correct for the third playing of each of the items minus the number correct for the first playing of each item.

Results:

The increase score of fifth graders was significantly higher than that of second graders ($P=0.1$).

Boys' increase scores at both grade levels were higher than girls' scores but not significantly.

Task performance scores (i.e. scores of the first vocal imitation of test items) were not significantly correlated to reading achievement or short-term memory at the second or fifth grade level. Task performance increase scores were significantly correlated to reading achievement at both grade levels, but not significantly correlated to short term memory at either grade level.

Brower concludes that (1) boys and girls make about the same rate of progress in singing pitch sequences, (2) intermediate grade children can learn new pitch material more rapidly than primary school children, and (3) children who improve in pitch performance tend to be those who achieve well in reading.

Foley, Elspeth. "The Effects of Training in Conservation of Tonal and Rhythmic Patterns on Second Grade Children." Unpublished Ph.D. dissertation, University of Iowa, 1974. Dissertation Abstracts, XXXV, 4584A.

Purpose:

This investigation was designed to measure the effects of training upon the ability of second grade children to conserve tonal patterns when rhythm patterns were deformed, and to conserve rhythm patterns when tonal patterns were deformed.

Procedure:

Six second grade classes were used in the music study: three were experimental groups and three were control groups. During a series of six consecutive music class periods, ten minutes of the experimental groups' classes were devoted to conservation training, while the control groups received no conservation training. All six groups were taught by their regular music teacher and the total instructional time for all groups was the same.

A non-verbal conservation test, appropriate to the musical ability level of second grade children, was devised for this research. A preliminary study indicated that the test procedures were effective.

One-half of the subjects used in each of the six classes was given the conservation test as a pretest; the remaining subjects were given the same test as a posttest at the end of the training period. A delayed posttest was administered two weeks later to all those who took the initial posttest as a measure of retention of learning. Data were analyzed by means of analyses of variance using the unweighted-means procedure, and by t tests. Repeated measures analyses of variance were used to compare posttest and delayed posttest scores.

Results:

Analyses of data indicated the results shown below.

1. Increase in conservation scores:

   Experimental group, significant at the .05 level.

   Control group, not significant.

2. The difference in gain between groups was significant at the .05 level.

3. Differences in scores among groups:

   Experimental group, not significant.

   Control group, not significant.

4. None of the groups showed a significant decrease in scores from the initial posttest to the delayed posttest.

This investigation indicates that improvement in conservation of tonal or rhythmic patterns can be effected by training. Further research is suggested which would involve (a) longer training periods, (b) training in areas other than melody and rhythm, and (c) training of children of other grade levels.

Galloway, H.F. and Bean, M.F. "The Effects of Action Songs on the Development of Body-Image and Body Part Identification in Hearing-Impaired Pre-School Children." Journal of Music Therapy, XI (March, 1974), 125-134.

Purpose:

The purpose of this study was to determine the effects of action song activities on the body-image knowledge and development of preschool hearing-impaired children.

Procedure:

Six preschool children (2 girls and 4 boys) of ages 3 to 6 years participated in the study. The degree of hearing loss varied from the hard-of-hearing category to the deaf category (1 girl and 1 boy).

Two individualized tasks were used as pre- and postmeasurements: (a) a self-drawing evaluated on the inclusion and refinements of body parts and (b) the physical identification of 22 specific body parts upon verbal requests. In both measurements, a binary point system was used for scoring: one point for drawing or touching a body part; no points for omissions or incorrect responses. Ample time was allowed for responses.

After the pretests, recordings of action songs were used with the class in seventeen 15-minute sessions over a period of 4 weeks. The songs, which were supplemented with visual aids, called for the children to indicate specific body parts by some type of physical movement (shaking, pointing, etc.). No other type of body-part training was employed with these children during the study. At the end of the 4 weeks period, postmeasures were individually taken and pre-post analyses were made.

Results:

Statistical analysis was limited to a sign test (Popham, 1967) due to the small number of subjects, the lack of a control group, and the types of measures taken.

Self-Drawing Task -- Five of the 6 children showed point gains on the posttest, and the 6th child showed no change. The sign test indicated the group gains to be significant at the .03 level.

Body Parts Identification Task -- Again, 5 of the 6 children showed point gains on the posttest, and the 6th child showed no change. The child showing no change on this task was not the same child as the "no change" child on the self-drawing task.

Greer, R.D.; Dorow, Laura; and Hanser, Suzanne. "Music Discrimination Training and the Music Selection Behavior of Nursery and Primary Level Children." Council for Research in Music Education, XXXV (Winter, 1973), 30-43.

Purpose:

This investigation sought to determine whether students who were taught simple music discriminations would increase their time spent listening to music associated with those discriminations.

Two experiments were conducted in this research.

Experiment 1

Procedure:

Thirty-nine subjects, randomly selected from grades two and three of a predominantly black school, were individually pretested then randomly assigned to one of two treatment groups. Both groups received five 20-minute instruction sessions each day for five consecutive days. Posttests were administered at the conclusion of the training. In the testing procedure, subjects could elect to listen to one of three types of sounds (symphonic music, rock music, or white noise) by depressing keys. Data consisted of the number of seconds subjects selected each type of sound.

The music discrimination training group were taught to match pictures of orchestral instruments with appropriate orchestral sounds. The non-music group engaged in art or other non-music activities during the listening periods.

Five observers trained for this investigation recorded their observations and dispensed contingent approval or disapproval for academic and social behavior.

Results:

Analysis of pre- and posttest sound contingency scores indicated (a) no overall differences between treatment groups and (b) both groups significantly increased the time spent listening to symphonic music and rock music. Three of the groups, the grade three music groups and both (grades 2 and 3) non-music groups, demonstrated preferences for rock music in the pretests but showed no preference for rock or symphonic music in the posttests. The grade two music group data showed no difference between rock or symphonic music listening time in the pretest or posttest.

The total sound contingency selection time for grade three was significantly higher than grade two in the pretest and posttest.

A greater number of social and academic approvals were given to the non-music group than the discrimination training group.

Experiment 2

Procedure:

Twenty-four nursery school children (near age 3.2) were pretested then matched in equivalent pairs according to their selection time for symphonic music. One subject in each pair was randomly assigned to the discrimination training group and the other subject was assigned to the non-music activities group. Each pair of subjects was trained in 10-minute sessions in which they heard the same symphonic music and received the same number of approvals. Subjects were taught to match pictures of instruments to the sound being heard until the criterion level was met (correctly matching four pictures to four sounds, twice in succession). Non-music subjects worked at art activities during the listening time.

Results:

The nursery children in the discrimination groups reached criterion, and adult approval was an effective reinforcer. In the pretest the non-music group had preferred rock and the music group showed no preference for rock or symphonic music. In the posttest both groups preferred symphonic music, apparently partially due to adult approval being given with that music. The difference between the two groups in posttest symphonic selection time was not significant.

Citing the speed with which the three-year-old children learned to recognize four compositions and an obvious increase in their attention span, the authors suggest that music instruction more rigorous than "readiness activities" is possible at an early age.

Klein, Karen; Goetz, Elizabeth; Baer, Ann; and Etzel, Barbara. "The Acquisition and Generalization of Singing Participation in Preschool as a Function of Practice, Primes, and Reinforcement." Child Study Journal, V, 63-70.

Purpose:

This study was conducted to determine the direct and generalization effects of individual training on group singing participation.

Procedure:

The subject was a four-year-old girl considered by her teachers as being intelligent, normal in motor development, quiet, and cooperative. Her learning skills were average or better, but she was below average in social interaction with peers, refusing to participate in action-type activities, including singing in large groups.

"The design was a controlled individual analysis, multiple baseline design across different songs." The subject was trained in four songs in successive sessions, singing only one song in each session. Primes (suggestions to sing) and teacher reinforcements were used in the sessions. Shortly after the individual sessions, the class engaged in group singing and the subject was again given verbal and non-verbal encouragement to participate.

Results:

Observational data showed that the subject's degree of participation in group singing of the trained songs was "none" during baseline conditions, and increased to "most" during the training sessions. The training also generalized to other songs in which no training had been provided, the degree of participation increasing from "none" to "most."

The training procedure was successful in developing an initial singing response by a child who, while normal in other respects, had not participated in group singing.

Loucks, Donald. "The Development of an Instrument to Measure Instrumental Timbre Concepts of Four-Year-Old Children: A Feasibility Study." Unpublished Ph.D. dissertation, Ohio State University, 1974. Dissertation Abstracts, XXXV, 5448A.

Purpose:

This research was conducted to determine the feasibility of developing a valid and reliable instrument which would measure the ability of four- and five-year-old children to discriminate, aurally, instrumental timbres. Specific questions examined were the child's ability to:

1. Determine whether the sounds of two short musical excerpts were produced by the same instrument(s).
2. Determine which two of three musical excerpts are more closely related according to timbre.
3. Identify the timbre of a single instrument as being a wind, electronic, string, or percussion instrument.

Procedure:

Test development proceeded in this way. An exploratory form (Form A) was administered to 43 elementary education majors for their assessments of test directions, clarity, and duration of items. Exploratory form B was given to 28 preschool children, and several revisions were made based on careful analysis of test data. The final form of the test (Form C) contained 25 tape recorded test items which employed a total of 43 musical excerpts representing classical, Western, folk, jazz, rock, African, Indian and Chinese music.

Item analyses included the Kuder-Richardson formulae 20 and 21. The main criteria determining the feasibility of developing this instrument were the results of the item analyses.

Form C of the test was individually administered to 60 preschool children who had not participated in any of the test development. Subjects were selected on the basis of age and normal hearing ability. A t test was used to determine the significance of differences between the test scores of (a) four-year-olds and those of five-year-olds and (b) boys and girls. A correlation coefficient was used to determine whether there was a significant relationship between age and test scores.

Results:

"Form C of the Timbre Test proved to be an acceptable instrument for measuring instrumental timbre concepts" of these subjects. The difference between test scores of four-year-olds and those of five-year-olds was significant; a positive relationship between age and test scores was significant at the .01 level; the difference between boys' test scores and girls' test scores was not significant.

McDowell, Robert H. "The Development and Implementation of a Rhythmic Ability Test Designed for Four-Year-Od Preschool Children." Unpublished Ed.D. dissertation, University of North Carolina at Greensboro, 1974. Dissertation Abstracts, XXXV, 2029-A.

Purpose:

This study was undertaken to develop a test designed to measure the rhythmic ability of four-year-old children and to study the effects of rhythmic training on that age group.

Procedure:

A forty-item test--four ten-item sub-tests--was developed to measure children's ability to:

1. Determine whether two tempos are the same or different.
2. Accurately produce a given tempo.
3. Accurately reproduce a given rhythm pattern.
4. Determine whether two rhythms are the same or different.

A preliminary form of the test was tested, revised, then administered to 46 four-year-olds. The split-half test reliabilities were .86 to .89. The test-retest reliability of .45 for 36 subjects was not significant at the .05 level; however, there was an intervening variable for 24 of the subjects.

In order to validate the rhythm test, 32 fourth-grade subjects were given the "old form" of the test and also the Gordon Music Aptitiude Profile. Correlations between the composite scores of the researcher's test and the composite MAP was .51, significant at the .001 level. Validity was studied by correlating scores of 10 kindergarten children with music and classroom teachers' rankings of the subjects musical rhythmic ability. The correlations were .78 (music teachers) and .66 (classroom teachers).

Thirty-six four-year-olds were assigned to one of three groups. Group one was a no-contact group; group two had 20 sessions of non-musical activities with the researcher; group three had 20 sessions of rhythmic training with the researcher. All three goups were pretested, participated in the research sessions for one month, then posttested.

Results:

1. The increase of posttest scores over pretest scores was not significantly greater for the training group than for the other two groups.
2. Group one (no-contact) showed more improvement than group two (contact but no rhythm training).
3. Sex differences did not significantly affect test scores.

Michel, Paul. "The Optimum Development of Musical Abilities in the First Years of Life." Psychology of Music, I (June, 1973), 14-20.

In this article the author advances the thesis that early musical development is not, as commonly believed, "primarily dependent on biological transitions . . . which have a spontaneous effect at each age level." He states that young children's potential for learning music has been underestimated and that music learning should be encouraged and "provoked" through various music activities, rather than waiting for it to occur. In support of this position he presents the points which follow.

The view that the first year of life is of little importance in musical development is erroneous. In fact, vital foundations for later musical growth are laid through learning to discriminate aurally pitches and timbres, and early speaking/singing attempts. Research observations have shown that infants respond to music stimuli from the first months of life, can differentiate between tones as close as a minor third at 6 or 7 months, and can produce "the first clearly audible intervals in . . . singing sequences" from 6 to 12 months.

Singing in major and minor modes can be achieved before school age if appropriate music experiences are provided, and the use of pentatonic melodies should not be assumed as correct or necessary.

The emergence of highly gifted individuals occurs very early in music in comparison with other areas of learning. Such talent is normally due to the child's active involvement with music in a musically stimulating environment. "Our analysis shows that the peak of optimum achievement for musical reproductive abilities--their sensitive or critical period lies in the 5th and 6th years of life. It is then that possibility of particularly rapid and relatively easy development of vocal and auditory abilities must be utilised."

Moore, Dorothy Louise. "A Study of Pitch and Rhythm Responses of Five-Year-Old Children in Relation to Their Early Music Training." Unpublished Ph.D. dissertation, Florida State University, 1973. Dissertation Abstracts, XXXIV, 6689A.

Purpose:

This investigation was conducted to assess the differences in rhythm and pitch ability of five-year-old children, and to identify the factors in early musical experiences which determine these responses. Specifically, the study sought to determine the influence of (1) environment upon pitch and rhythm responses, (2) a musically motivated home environment, (3) sex type, and (4) socioeconomic status.

Procedure:

One hundred and one kindergarten boys and girls were individually tested during the first week of school to determine their abilities in the areas of pitch (vocal range, pitch accuracy, pattern identification, and pitch duplication). Environmental data on each child were collected by means of parent questionnaires.

A stepwise multiple criterion regression data analysis was used to assess the correlation between children's test scores and their home environments.

Results:

The principal findings listed by the author are summarized in the items listed below.

1. A child's pitch and rhythm responses correlate with the combined environmental variable (P=.01).
2. These home environment experiences appear to be positively related to the child's musical ability:
   (a) having and hearing musical instruments played.
   (b) having other family members who show interest in music by

participation in musical activities.

(c) having parental help with singing and moving to music.

(d) hearing various kinds of recorded music.

3. One hundred and thirteen environmental variables were identified as significant as predictors of pitch or rhythm responses. Pitch responses were somewhat more highly correlated to environmental predictors than rhythm responses
4. Girls performed significantly better than boys in pitch accuracy and vocal range.
5. Six of nine correlations between pitch and rhythm were significant, indicating that children who achieve well in one area are likely to do so in both.
6. Twenty percent of the children who scored at or above the total test mean score were from homes whose socio-economic level was below the mean socio-economic level for the group.
7. Seven to ten percent of the subjects who scored at or above the mean were from non-musical homes.
8. Nursery and church school factors appeared as predictors 27 times, strongly suggesting that such experiences aid musical development.

Sergeant, Desmond; and Roche, Shelia. "Perceptual Shifts in the Auditory Information Processing of Young Children." Psychology of Music, I (June, 1973), 39-48.

Purpose:

This experiment was designed to seek evidence of definite shifts in the processing of auditory information in young children and to investigate the relationship of this to the onset of conceptualization.

Procedure:

Thirty-six randomly selected children were placed into three groups.

Group I - Thirteen 3- and 4-year-olds
Group II - Ten 5-year-olds
Group III - Thirteen 6-year-olds

The children were taught to sing three short songs during six training sessions over a three week period. One week after the training period each child sang the songs in a relaxed setting. Tape recordings of these performances were later rated by two judges who scored the singing on perceptual dimension (pitching), and conceptual dimensions (melodic shape, intervals and tonality).

Results:

The data indicated an inverse relationship between pitch level accuracy (perceptual dimension) and the onset of cognition of melodic shape, intervals, and tonality (conceptual dimension). The authors state that "As conceptual functions concerned with the organization of pitches within a melody increase . . . so the attentioned value of the absolute pitch level of the melodic structure declines."

Young, W.T. "Efficacy of a Self-Help Program in Music for Disadvantaged Preschools." Journal of Research in Music Education, XXIII (Summer, 1975), 99-108.

Purpose:

The purpose of this study was to determine the efficacy of a prestructured music program for disadvantaged preschools, the program being implemented by personnel already involved in the operation of those preschools.

Procedure:

Ten Headstart teaching centers were selected as experimental schools and two others were designated as control schools. One teacher from each of the experimental schools attended a three-day workshop where instruction was provided on how to use musical instruments and teaching materials, and how to implement a 90-lesson teaching manual. Objective and subjective evaluation of the teachers were made during the workshop including administration of the Iowa Tests of Music Literacy.

In September, each of 277 subjects in the 12 centers was given a culture-free, orally administered music ability test designed to measure melodic perception, rhythmic perception and musicianship. This test was given again at the end of the school year, when 109 of the original group were still available for testing.

Results:

The criterion-referenced test was used to provide three types of assessments of programs: (1) ability at the time of posttesting, (2) amount of improvement, and (3) percentage of improvement. The experimental groups showed gains two to three times those of control groups. Comparisons of pre- and posttest means of the experimental groups indicated that the progress demonstrated was significant at the .01 level in melodic, rhythmic, musicianship, and composite abilities. The control group did not show significant differences in any of these four abilities.

Improvement of individual children was also measured by pretest-posttest comparisons. More than three-fourths of the experimental children improved in overall ability, while less than half of the control children improved.

It was further determined that improvement made by the children was moderately related to the teacher's music literacy, but strongly related to the improvement shown by the teacher on the ITML.

The author concludes that relatively untrained teachers can be taught in a brief period of time, to teach effectively a program of remedial music to preschoolers.

Young, William T. "Musical Development in Preschool Disadvantaged Children." *Journal of Research in Music Education*, XXII (Fall, 1974), 155-169.

Purpose:

This study was designed to investigate the effect of a structured musical training program on the musical abilities of disadvantaged preschool children.

Procedure:

One pair of preschools, one advantaged and one disadvantaged, received music instruction in a series of twenty lessons covering a period of nine weeks. A matching pair of preschools were used as control groups. All children in the experimental and control groups were pre- and posttested using the Hill Primary Music Ability Test as the criterion measure of the subjects' musical ability.

The children were formed into groups of approximately ten each, and received music instruction in twenty-minute sessions three times a week. General and specific objectives emphasizing rhythm, melody and singing were prescribed for each lesson.

Results:

1. The musical ability of disadvantaged children was initially inferior to that of advantaged children (P=.01). At the conclusion of the study, however, the disadvantaged group which received instruction was (a) significantly better than the control group of disadvantaged children and (b) equal in the measured musical abilities to the control group of advantaged children.
2. Musical achievement and amount of improvement appeared to be only incidentally related to chronological age, mental age and intelligence.

3. The amount of teaching experience possessed by the teachers had little effect on the results of the instructional program.
4. For disadvantaged children, the amount of learning displayed appeared to be affected by regularity of attendance to music classes. This was not the case with advantaged children.

The author concludes that "the effect of disadvantagement on the musical ability of preschool children is not permanent and can be eliminated if the remedial process is begun early enough."